Australian Government

# ICT Information and Communications Technology

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# Links

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# ICT10115 Certificate I in Information, Digital Media and Technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This qualification first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for individuals to safely perform foundation digital literacy tasks using a personal computer and a range of software applications and digital devices.

*Licensing/Regulatory Information*

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 6**

**4 core units** plus

**2 elective units**

The elective units consist of:

- up to 2 from the elective units listed below
- up to 1 from elsewhere in the ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate I or II level.


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The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

ICTICT101 Operate a personal computer

ICTICT102 Operate word-processing applications

ICTICT103 Use, communicate and search securely on the internet

ICTICT104 Use digital devices

**Elective units**

BSBWHS201 Contribute to health and safety of self and others

BSBSUS201 Participate in environmentally sustainable work practices

BSBCMM101 Apply basic communication skills

ICTICT105 Operate spreadsheet applications

ICTICT106 Operate presentation packages

ICTICT107 Use personal productivity tools

ICTICT108 Use digital literacy skills to access the internet

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT10115 Certificate I in Information, Digital Media and Technology | ICA10111 Certificate I in Information, Digital Media and Technology | Updated to meet Standards for Training Packages | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT20115 Certificate II in Information, Digital Media and Technology

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 1.0. |

## Qualification Description

This entry level qualification provides the foundation skills and knowledge to use information and communications technology (ICT) in any industry.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 14**

**7 core units** *plus*

**7 elective units**

*The elective units consist of:*

- *up to 7 from the elective units listed below*
- *up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate II or III level.*


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*The elective units chosen must be relevant to the work outcome and meet local industry needs.*

**Core units**

BSBWHS201 Contribute to health and safety of self and others

BSBSUS201 Participate in environmentally sustainable work practices

ICTICT201 Use computer operating systems and hardware

ICTICT202 Work and communicate effectively in an ICT environment

ICTICT203 Operate application software packages

ICTICT204 Operate a digital media technology package

ICTWEB201 Use social media tools for collaboration and engagement

**Elective units**

CUACAM201 Assist with a basic camera shoot

CUADIG201 Maintain interactive content

CUADIG303 Produce and prepare photo images

CUAPOS201 Perform basic vision and sound editing

CUASOU202 Perform basic sound editing

ICPDMT321 Capture a digital image

ICTICT205 Design basic organisational documents using computing packages

ICTICT206 Install software applications

ICTICT207 Integrate commercial computing packages

ICTICT208 Operate accounting applications

ICTICT209 Interact with ICT clients

ICTICT210 Operate database applications

ICTICT211 Identify and use basic current industry specific technologies

ICTICT212 Incorporate Indigenous needs and perspectives into ICT environment

ICTSAS201 Maintain inventories for equipment, software and documentation

ICTSAS202 Apply problem-solving techniques to routine ICT malfunctions

ICTSAS203 Connect hardware peripherals

ICTSAS204 Record client support requirements

ICTSAS205 Maintain ICT system integrity

ICTSAS206 Detect and protect from spam and destructive software

ICTSAS207 Protect and secure information assets



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ICTSAS208 Maintain ICT equipment and consumables

ICTSAS209 Connect and use a home based local wireless network

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT20115 Certificate II in Information, Digital Media and Technology (Release 2) | ICT20115 Certificate II in Information, Digital Media and Technology (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT20215 Certificate II in Telecommunications Network Build and Operate

## Modification History

| Release | Comments |
|---|---|
| Release 3 | This version released with ICT Information and Communications Technology Training Package Version 3.1.<br>ICTCBL320 and ICTBWN305 added to list of elective units.<br>ICTCBL212 replaced with ICTCBL220 in the Telecommunications Linesworker HFC specialisation stream. |
| Release 2 | This version released with ICT Information and Communications Technology Training Package Version 3.0. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification has been designed as a pathway for entry into work on the National Broadband Network (NBN).

This qualification provides individuals with the skills and knowledge in a range of NBN industry occupations, specifically for the national rollout of high speed broadband network infrastructure. This may be undertaken as part of a traineeship.

In conjunction with safe working practices, the Telecommunications Linesworker occupational outcome is achieved by selecting one of three specialist technology streams: Fibre or Copper or Hybrid Fibre Coaxial (HFC).

The Linesworker occupation reflects the role of operators who perform cable and infrastructure work underground. This involves safe civil and construction work in site preparation, building of enclosures, installing mounting brackets and hauling of underground cables. It also reflects the role of operators in performing work safely aboveground to install fibre or metallic aerial cable and infrastructure. This may also include installation of aerial lead-in cables to customer premises and providing traffic management.


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*Licensing/Regulatory Information*

Work functions in the occupational areas where this qualification may be used may be subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

Cabling at the customer premises must be carried out according to requirements of the Australian Communications and Media Authority (ACMA) and relevant industry registration bodies, and in line with the specifications of the access network owner. Refer to "Pathways to ACMA Cabling Provider Rules - Cabling registration" and the mandatory industry practical hours required for registration.

# Entry Requirements

Nil.

# Packaging Rules

**Total number of units = 12**

**5 core units** plus

**7 elective** units

The elective units consist of

- up to 7 from Group A or Group B
- up to 2 may be from elsewhere in this Training Package, another currently endorsed Training Package or any accredited course at AQF level II or III.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the Australian Qualification Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome. This could be achieved by selecting a specialisation (see below) or by selecting an appropriate mix of electives from both Group A and B.

Units selected from other training packages or accredited courses must not duplicate units selected from, or available within, the ICT Information and Communications Technology Training Package.

Refer to the *Specialisations* information below, and to the Companion Volume Implementation Guide, for advice about choosing electives to support specialisations.

**Core Units**



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CPCCOHS1001A Work safely in the construction industry
ICTTEN201 Use electrical skills in telecommunications work
ICTTEN202 Use hand and power tools
ICTWHS204 Follow work health and safety and environmental policy and procedures
ICTWOR201 Work effectively in telecommunications technology

**Elective Units**

**Group A**

**Cabling**

ICTBWN303 Install lead-in module and cable for fibre to the premises
ICTBWN305 Use optical and radio frequency measuring instruments
ICTCBL207 Haul underground cable
ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers
ICTCBL209 Joint and terminate coaxial cable
ICTCBL211 Install an above ground equipment enclosure
ICTCBL212 Erect aerial cable supports
ICTCBL213 Construct underground telecommunications infrastructure
ICTCBL214 Fix aerial cable
ICTCBL215 Joint metallic conductor cable in access network
ICTCBL220 Install a cable lead-in
ICTCBL302 Install and terminate optical fibre cable on customer premises
ICTCBL303 Install and terminate coaxial cable
ICTCBL307 Install underground enclosures and conduit
ICTCBL308 Install underground cable
ICTCBL310 Install aerial cable
ICTCBL320 Jumper metallic conductor cable in the access network
ICTPMG201 Prepare site for support installation
ICTTEN302 Install telecommunications network equipment
ICTTEN303 Locate, identify and rectify recurrent network faults
ICTTEN310 Remove and replace electronic circuit boards in carrier equipment
ICTTEN311 Inspect, clean and handle optical fibre cable and connectors

**Group B**


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## General

BSBSUS201 Participate in environmentally sustainable work practices

CPCCCM2007B* Use explosive power tools

CPCCDE3014A* Remove non-friable asbestos

CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry

CPCPCM2043A Carry out WHS requirements

CPCPCM2055A* Work safely on roofs

HLTAID001 Provide cardiopulmonary resuscitation

HLTAID003 Provide first aid

ICTTEN207 Install and test internet protocol devices in convergence networks

ICTWHS201 Provide telecommunications services safely on roofs

RIIWHS204D Work safely at heights

ICTWHS203 Work safely near power infrastructure

## Specialisations

The use of specialist streams is appropriate for this qualification in accordance with the AQF, Standards for Training Packages and the packaging rules. Where a specialist stream is achieved, testamurs must show the appropriate specialisation in brackets. Refer to the Companion Volume Implementation Guide for further advice about specialisations.

### Minimum elective units required for technology specialisations are described below.

#### Telecommunications Linesworker Fibre

The following 7 units must be selected:

- ICTCBL211 Install an above ground equipment enclosure
- ICTCBL213 Construct underground telecommunications infrastructure
- ICTCBL214 Fix aerial cable
- ICTCBL207 Haul underground cable
- ICTPMG201 Prepare site for support installation
- ICTTEN310 Remove and replace electronic circuit boards in carrier equipment
- ICTTEN311 Inspect, clean and handle optical fibre cable and connectors.

#### Telecommunications Linesworker Copper

The following 6 units must be selected:

- ICTCBL211 Install an above ground equipment enclosure
- ICTCBL213 Construct underground telecommunications infrastructure
- ICTCBL214 Fix aerial cable


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- ICTCBL207 Haul underground cable
- ICTCBL320 Jumper metallic conductor cable in the access network
- ICTPMG201 Prepare site for support installation.

**Telecommunications Linesworker HFC**

The following 6 units must be selected:

- ICTCBL209 Joint and terminate coaxial cable
- ICTCBL211 Install an above ground equipment enclosure
- ICTCBL214 Fix aerial cable
- ICTCBL220 Install a cable lead-in
- ICTBWN305 Use optical and radio frequency measuring instruments
- ICTPMG201 Prepare site for support installation

Plus:

- ICTWHS201 Provide telecommunications services safely on roofs

or

- RIIWHS204D Work safely at heights.

*Note the following prerequisite unit requirements:

| **Unit in this qualification** | **Prerequisite unit** |
|---|---|
| CPCCCM2007B Use explosive power tools | CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry |
| CPCCDE3014A Remove non-friable asbestos | CPCCOHS1001A Work safely in the construction industry |
| CPCPCM2055A Work safely on roofs | CPCPCM2043A Carry out WHS requirements |

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT20215 Certificate II in Telecommunications Network Build and | ICT20215 Certificate II in Telecommunications Network Build and | Amendments to elective bank groups.<br>Occupational outcomes and specialisations | Equivalent qualification |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| Operate (Release 2) | Operate (Release 1) | clarified. | |

# Links

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# ICT20315 Certificate II in Telecommunications Technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification reflects the role of a new entrant into the telecommunications industry who can apply a range of competencies in a varied work context from installation to operation of telecommunications equipment and products.

The qualification has a generic outcome if no specialisation has been undertaken. When a specialisation has been selected then the qualification has one of the following outcomes.

### Cabling

This specialisation reflects the role of an operator for the installation of telecommunications equipment, data cabling and cabling products on customer premises.

### Networking

This specialisation reflects the role of an operator for a limited range of digital reception equipment for either a customer or an enterprise. They would perform limited fault finding on a range of digital reception equipment for both cable TV and free to air TV reception.

### Radio Communications

This specialisation reflects the role of an operator for the installation and maintenance of telecommunications radio communications equipment installed in base stations. It prepares an individual for entry to the industry in a general area of installation of telecommunication radio communications equipment and connection of wireless base stations.

### Rigging


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This specialisation reflects the role of an operator for the installation and maintenance of telecommunications equipment installed on structures requiring rigging skills. It prepares an individual for entry to the industry in a specialised area of installation of telecommunication equipment on high structures including radio towers or for installation and connection of wireless base stations.

Licensing/Regulatory Information

Work functions in the occupational areas where this qualification may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

Cabling at the customer premises must be carried out according to requirements of the Australian Communications and Media Authority (ACMA) and relevant industry registration bodies, and in line with the specifications of the access network owner.

Refer to "Pathways to ACMA Cabling Provider Rules - Cabling registration" and the mandatory industry practical hours required for registration.

Dogging and rigging are classified under the National Standards for licensing persons performing high risk work. Age restrictions apply to eligibility for licencing. Please refer to the relevant federal and state legislation to ensure compliance with the regulations.

# Entry Requirements

Nil

# Packaging Rules

**Total number of units = 15**

**6 core units** plus

**9 elective** units

The elective units consist of:

- up to 9 may be from any group of elective units listed below
- up to 2 units from elsewhere in this Training Package, or another currently endorsed Training Package or accredited course at AQF Level 2 or 3.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the Australian Quality Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome.


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Units selected from other Training Packages or accredited courses must not duplicate units selected from, or available within, the ICT Information and Communications Technology Training Package.

Refer to the *Specialisations* information below, and to the Companion Volume Implementation Guide, for advice about choosing electives to support specialisations in particular sectors of the information and communications industry.

**Core Units**

BSBSUS201 Participate in environmentally sustainable work practices

ICTTEN201 Use electrical skills in telecommunications work

ICTTEN202 Use hand and power tools

ICTTEN207 Install and test internet protocol devices in convergence networks

ICTWHS204 Follow work health and safety and environmental policy and procedures

ICTWOR201 Work effectively in telecommunications technology

**Elective Units**

**Group A Radio communications and rigging**

ICTTCR201 Use rigging practices and systems on telecommunications network structures

ICTTCR202 Use operational safety in a telecommunications rigging environment

ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures

CPCCLDG3001A Licence to perform dogging

CPCCLRG3001A Licence to perform rigging basic level*

ICTRFN201 Install a satellite antenna

ICTRFN202 Install a terrestrial antenna

ICTRFN304 Construct and test a radio communications device

**Group B Cabling**

ICTCBL201 Install customer cable support systems

ICTCBL202 Place and secure customer cable

ICTCBL203 Terminate metallic conductor customer cable

ICTCBL204 Install functional and protective telecommunications earthing system



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ICTCBL205 Joint metallic conductor cable on customer premises

ICTCBL206 Alter services to existing cable system

ICTCBL207 Haul underground cable

ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers

ICTCBL209 Joint and terminate coaxial cable

ICTCBL210 Install a telecommunications service to a building

ICTCBL211 Install an above ground equipment enclosure

ICTCBL212 Erect aerial cable supports

ICTCBL213 Construct underground telecommunications infrastructure

ICTCBL214 Fix aerial cable

ICTCBL215 Joint metallic conductor cable in access network

ICTCBL219 Apply safe technical work practices for cabling registration when configuring an ADSL circuit

ICTCBL220 Install a cable lead-in

ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule*

ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards

ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule*

**Group C Networking**

ICTTEN203 Install and configure a home or small office network

ICTTEN204 Install and configure a small to medium business network

ICTTEN205 Build and maintain a secure network

ICTTEN206 Operate new media software packages

**Group D General**

BSBCUS201 Deliver a service to customers

CPCCOHS1001A Work safely in the construction industry

HLTAID001 Provide cardiopulmonary resuscitation

HLTAID003 Provide first aid

ICTICT206 Install software applications

ICTPMG201 Prepare site for support installation

ICTPMG202 Plan, organise and undertake work activities



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ICTSAS203 Connect hardware peripherals

ICTWHS201 Provide telecommunications services safely on roofs

ICTWHS202 Work safely in a radio frequency electromagnetic radiation environment

ICTWHS203 Work safely near power infrastructure

**Specialisations**

The use of specialist streams is appropriate for this qualification in accordance with the AQF, Standards for Training Packages and the packaging rules. Where a specialist stream is achieved, testamurs must show the appropriate specialisation in brackets. Refer to the Companion Volume Implementation Guide for further advice about specialisations.

**The minimum elective units required for the specific specialisations are described below.**

## Cabling

*(Note: See licencing information in the ICT Companion Volume Implementation Guide regarding ACMA registration)*

Select at least 6 electives from Group B Cabling.

## Networking

Select at least 4 electives from Group C Networking.

## Radio Communications

Select the following 3 elective units:

- ICTRFN201 Install a satellite antenna
- ICTRFN202 Install a terrestrial antenna
- ICTRFN304 Construct and test a radio communications device
- plus at least 1 more from Group A Radio communications and rigging.

## Rigging

*(Note: This specialisation is not suitable for delivery in a school as a Vocational Education and Training (VET) program. See information in the ICT Companion Volume Implementation Guide regarding licencing for dogging and rigging.)*

Select the following 4 elective units from Group A Radio communications and rigging:

- ICTTCR202 Use operational safety in a telecommunications rigging environment
- ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures
- CPCCLDG3001A Licence to perform dogging



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- CPCCLRG3001A Licence to perform rigging basic level*.
-

*Note the following prerequisite unit requirements:

| Unit in this qualification | Prerequisite unit |
|---|---|
| CPCCLRG3001A Licence to perform rigging basic level | CPCCLDG3001A Licence to perform dogging |
| ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | ICTWHS204 Follow work health and safety and environmental policy and procedures<br>ICTTEN201 Use electrical skills in telecommunications work |
| ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule | ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule<br>OR<br>ICTCBL201 Install customer cable support systems, and ICTCBL202 Place and secure customer cable, and ICTCBL203 Terminate metallic conductor customer cable, and ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards |

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT20315 Certificate II in Telecommunications Technology | ICT20113 Certificate II in Telecommunications Technology<br><br>ICT20213 Certificate II in Telecommunications<br><br>ICT20313 Certificate II in Telecommunications | Updated to meet Standards for Training Packages.<br><br>Changed packaging rules.<br><br>Changed | No equivalent qualification |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | Cabling<br><br>ICT20413 Certificate II in Telecommunications Digital Reception Technology<br><br>ICT20513 Certificate II in Telecommunications Fixed Wireless and Rigging Installation | core units. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT30115 Certificate III in Information, Digital Media and Technology

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in a wide range of general information and communications technology (ICT) technical functions and to achieve a degree of self-sufficiency as an advanced ICT user.

Persons working at this level will support information technology activities in the workplace across a wide range of ICT areas, including technical support, network administration, web technologies, software applications and digital media technologies.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 17**

**6 core units** *plus*

**11 elective units**



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The elective units consist of:

- 5 units from one of the following specialist elective groups:
  Group A Applications
  Group B Network administration
  Group C Support
  Group D Web technologies
  Group E Multimedia
- up to 6 from any of the specialist elective groups below or from Group F general elective units below
- up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate III or IV level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBWHS304 Participate effectively in WHS communication and consultation processes

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTICT202 Work and communicate effectively in an ICT environment

ICTICT301 Create user documentation

ICTICT302 Install and optimise operating system software

ICTSAS301 Run standard diagnostic tests

**Elective units**

**Specialist elective units**

**Group A Applications**

ICTICT203 Operate application software packages

ICTICT304 Implement system software changes

ICTICT307 Customise packaged software applications for clients

ICTICT308 Use advanced features of computer applications

ICTICT409 Develop macros and templates for clients using standard products

**Group B Network administration**

ICTNWK301 Provide network systems administration

ICTNWK302 Determine and action network problems



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ICTNWK304 Administer network peripherals

ICTNWK305 Install and manage network protocols

ICTSAS307 Install, configure and secure a small office or home office network

**Group C Support**

ICTICT303 Connect internal hardware components

ICTSAS303 Care for computer hardware

ICTSAS304 Provide basic system administration

ICTSAS305 Provide ICT advice to clients

ICTSAS306 Maintain equipment and software

**Group D Web technologies**

BSBEBU401 Review and maintain a website

ICTWEB201 Use social media tools for collaboration and engagement

ICTWEB301 Create a simple markup language document

ICTWEB302 Build simple websites using commercial programs

ICTWEB303 Produce digital images for the web

**Group E Multimedia**

CUAANM301 Create 2D digital animations

CUAANM302 Create 3D digital animations

ICTGAM301 Apply simple modelling techniques

ICTGAM302 Design and apply simple textures to digital art

ICTGAM303 Review and apply the principles of animation

**General elective units**

**Group F**

BSBIPR301 Comply with organisational requirements for protection and use of intellectual property

CUADIG301 Prepare video assets

CUADIG302 Author interactive sequences

CUADIG304 Create visual design components

ICPDMT346 Incorporate video into multimedia presentations

ICTBWN301 Perform tests on optical communication system and components



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ICTBWN302 Install optical fibre splitters in fibre distribution hubs

ICTBWN303 Install lead-in module and cable for fibre to the premises

ICTBWN304* Work safely with live fibre to test and commission a fibre to the x installation

ICTBWN305 Use optical and radio frequency measuring instruments

ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers

ICTCBL236* Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCBL237* Install, maintain and modify customer premises communications cabling: ACMA Open Rule

ICTCBL219 Apply safe technical work practices for cabling registration when configuring ADSL circuits

ICTICT305 Identify and use current industry specific technologies

ICTICT306 Migrate to new technology

ICTNWK303 Configure and administer a network operating system

ICTNWK306 Evaluate characteristics of cloud computing solutions and services

ICTNWK419 Identify and use current virtualisation technologies

ICTPRG301 Apply introductory programming techniques

ICTTEN201 Use electrical skills in telecommunications work

ICTWHS204 Follow work health and safety environmental policy and procedures

* Note the following prerequisite unit requirements:

| Unit in this qualification | Prerequisite unit |
|---|---|
| ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation | ICTBWN305 Use optical and radio frequency measuring instruments<br>ICTWHS204 Follow work health and safety environmental policy and procedures |
| ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | ICTTEN201 Use electrical skills in telecommunications work<br>ICTWHS204 Follow work health and safety environmental policy and procedures |
| ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule | ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule |


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# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT30115 Certificate III in Information, Digital Media and Technology (Release 2) | ICT30115 Certificate III in Information, Digital Media and Technology (Release 1) | Updated unit codes.<br><br>Updated elective unit list. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT30215 Certificate III in Telecommunications Digital Reception Technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification reflects the role of an operator working in the telecommunications industry who can apply a broad range of competencies in a varied work context of installation of a limited range of digital reception equipment for either a customer or an enterprise. Fault-finding skills on a range of digital reception equipment for Subscription TV and Free-to-air TV reception are acquired.

Licensing/Regulatory Information

Work functions in the occupational areas where this qualification may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

Cabling at the customer premises must be carried out according to requirements of the Australian Communications and Media Authority (ACMA) and relevant industry registration bodies, and in line with the specifications of the access network owner. Refer to "Pathways to ACMA Cabling Provider Rules - Cabling registration" and the mandatory industry practical hours required for registration.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 16**

**9 core** plus



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**7 electives** units

The elective units consist of:

- 1 elective unit selected from Group A Workplace elective units
- up to 6 elective units selected from Group B Specialised elective units and/or Group C General elective units, with no more than 2 units selected from the Work health and safety sub-group
- up to 2 of units of competency may be selected from any currently endorsed Training Package or accredited course at AQF Level 3 or 4.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the Australian Qualifications Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from, or available within, the ICT Information and Communications Technology Training Package.

**CORE UNITS**

ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule*

ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule*

ICTDRE303 Install a complex digital reception system

ICTRFN201 Install a satellite antenna

ICTRFN202 Install a terrestrial antenna

ICTTEN201 Use electrical skills in telecommunications work

ICTTEN202 Use hand and power tools

ICTWHS204 Follow work health and safety and environmental policy and procedures

ICTWOR201 Work effectively in telecommunications technology

**Elective Units**

**Group A - Workplace elective units**

BSBCUS201 Deliver a service to customers

BSBSMB305 Comply with regulatory, taxation and insurance requirements for the micro business



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BSBSMB306 Plan a home based business

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTSAS305 Provide ICT advice to clients

ICTSMB401 Set up and operate a contractor business

**Group B - Specialised elective units**

**Cabling**

ICTCBL206 Alter services to existing cable systems

ICTCBL219 Apply safe technical work practices for cabling registration when configuring an ADSL circuit

ICTCBL220 Install a cable lead-in

ICTCBL301 Install, terminate and certify structured cabling installation

ICTCBL303 Install and terminate coaxial cable

ICTCBL306 Locate and identify cable system faults

**Broadband and wireless networks**

ICTBWN301 Perform tests on optical communication system and components

ICTBWN305 Use optical and radio frequency measuring instruments

**Digital reception technology**

ICTDRE301 Install digital reception equipment

ICTDRE302 Locate and rectify digital reception equipment faults

ICTDRE304 Design communications wiring systems for customer premises

ICTDRE305 Develop integrated digital reception systems

ICTDRE401 Integrate customer digital reception equipment

ICTDRE402 Integrate data delivery modes

ICTTEN415 Install and configure internet protocol TV in a home network

**ICT use**

ICTICT302 Install and optimise operating system software

ICTICT303 Connect internal hardware components

ICTNWK301 Provide network systems administration



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### Work health and safety

CPCCOHS1001A Work safely in the construction industry

CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry *(Note: CPCCOHS2001A is a prerequisite unit for CPCCCM2007B. It is not to be selected without CPCCCM2007B.)*

ICTWHS201 Provide telecommunications services safely on roofs or RIIWHS204D Work safely at heights

ICTWHS203 Work safely near power infrastructure

### Radio frequency networks

ICTRFN401 Conduct radio frequency measurements

### Group C - General elective units

CPCCCM2007B Use explosive power tools*

CPCCDE3014A Remove non-friable asbestos*

RIIHAN301D Operate elevating work platform

TLID2010A Operate a forklift

TLID3035A Operate a boom type elevating work platform

*Note the following prerequisite unit requirements:

| Unit in this qualification | Prerequisite unit |
|---|---|
| ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | ICTWHS204 Follow work health and safety and environmental policy and procedures<br>ICTTEN201 Use electrical skills in telecommunications work |
| ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule | ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule |
| CPCCCM2007B Use explosive power tools | CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry |
| CPCCDE3014A Remove non-friable | CPCCOHS1001A Work safely in the construction |


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| | |
|---|---|
| asbestos | industry |

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT30215 Certificate III in Telecommunications Digital Reception Technology | ICT30413 Certificate III in Telecommunications Digital Reception Technology | Updated to meet Standards for Training Packages.<br><br>Changed packaging rules.<br><br>Changed core units. | No equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT30315 Certificate III in Telecommunications Rigging Installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification prepares an individual for entry into the telecommunications industry and its convergent technologies, including radio, optical, data and internet protocol (IP) networks.

This qualification reflects the role of an operator who can apply a broad range of competencies in a varied work context. An operator uses rigging skills to install and maintain radio antennas on high structures, such as radio towers, and build and mount sections of radio masts for a complete radio structure.

The role requires the use of rigging skills to install and maintain telecommunications equipment mounted on structures. The role includes assessing installation requirements, planning and performing installations, testing installed equipment and fault-finding. It involves a degree of autonomy and may include some supervision of others. Work is performed according to known routines and procedures and there is some accountability for the quality of outcomes in a specialised area of telecommunications installations.

Licensing/Regulatory Information

Work functions in the occupational areas where this qualification may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

Cabling at the customer premises must be carried out according to requirements of the Australian Communications and Media Authority (ACMA) and relevant industry registration bodies, and in line with the specifications of the access network owner. Refer to "Pathways to ACMA Cabling Provider Rules - Cabling registration" and the mandatory industry practical hours required for registration.


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Dogging and rigging are classified under the National Standards for licensing persons performing high risk work. Age restrictions apply to eligibility for licencing. Please refer to the relevant federal and state legislation to ensure compliance with the regulations.

# Entry Requirements

Nil

# Packaging Rules

**Total number of units = 16**

**10 core units** plus

**6 elective** units

The elective units consist of:

- 1 unit selected from Group A Workplace
- up to 5 units selected from Group B General
- up to 2 of units of competency may be selected from any currently endorsed Training Package or accredited course at AQF Level 3 or 4.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the Australian Qualifications Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from, or available within, the ICT Information and Communications Technology Training Package.

**Core Units**

CPCCLRG3001A Licence to perform rigging basic level*

CPCCLDG3001A Licence to perform dogging

ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures

ICTTCR303 Protect against electromagnetic radiation and systems hazards when working on telecomms radio sites

ICTTEN201 Use electrical skills in telecommunications work

ICTTEN202 Use hand and power tools

ICTTEN207 Install and test internet protocol devices in convergence networks



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ICTWHS204 Follow work health and safety and environmental policy and procedures

ICTWOR201 Work effectively in telecommunications technology

RIIWHS204D Work safely at heights

**Elective Units**

**Group A Workplace**

BSBSMB305 Comply with regulatory, taxation and insurance requirements for the micro business

BSBSMB306 Plan a home based business

BSBSUS201 Participate in environmentally sustainable work practices

ICTEDU301 Train customers in new technology

ICTWOR305 Supervise worksite activities

**Group B General**

**Rigging**

CPCCLRG3002A Licence to perform rigging intermediate level*

CPCCLRG4001A Licence to perform rigging advanced level*

ICTTCR201 Use rigging practices and systems on telecommunications network structures

ICTTCR202 Use operational safety in a telecommunications rigging environment

ICTTCR301 Build a telecommunications radio structure*

ICTTCR302 Install radio plant and equipment on telecommunications structures*

**Cabling**

ICTBWN305 Use optical and radio frequency measuring instruments

ICTCBL206 Alter services to existing cable system

ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers

ICTCBL209 Joint and terminate coaxial cable

ICTCBL210 Install a telecommunications service to a building

ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule*

ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule*



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ICTCBL219 Apply safe technical work practices for cabling registration when configuring an ADSL circuit

ICTCBL302 Install and terminate optical fibre cable on customer premises

ICTCBL303 Install and terminate coaxial cable

ICTCBL304 Perform cable and system test on customer premises

ICTCBL305 Hand over cable systems and equipment

ICTCBL306 Locate and identify cable system faults

ICTCBL309 Construct aerial cable supports

ICTCBL310 Install aerial cable

ICTCBL311 Install systems and equipment on customer premises

ICTCBL312 Cutover new systems and equipment on customer premises

ICTCBL314 Install network cable equipment

ICTCBL315 Maintain cable network

**Work health and safety**

CPCCOHS1001A Work safely in the construction industry

ICTWHS203 Work safely near power infrastructure

HLTAID001 Provide cardiopulmonary resuscitation

HLTAID002 Provide basic emergency life support

HLTAID003 Provide first aid

**Radio frequency networks**

ICTRFN301 Install a radio communications antenna and feedline

ICTRFN303 Install WiMAX customer premises equipment broadband wireless access equipment

ICTRFN305 Operate and maintain radio communications technical instruments and field equipment

ICTSAS305 Provide IT advice to clients

**Telecommunications network**

ICTTEN301 Provide infrastructure for telecommunications network equipment

ICTTEN302 Install telecommunications network equipment

ICTTEN303 Locate, identify and rectify recurrent network faults

ICTTEN306 Commission an electronic unit

ICTTEN307 Repair and replace telecommunications network hardware



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ICTTEN308 Maintain an electronic system

ICTTEN309 Provide infrastructure for telecommunications network customer equipment

**Workplace**

ICTWOR301 Organise resources

ICTWOR302 Organise material supply

ICTWOR303 Schedule resources

ICTWOR304 Manage spare parts

**Other**

CPCCCM2007B Use explosive power tools*

CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry *(Note: CPCCOHS2001A is a prerequisite unit for CPCCCM2007B. It is not to be selected without CPCCCM2007B.)*

CPCCDE3014A Remove non-friable asbestos*

RIIHAN301D Operate elevating work platform

TLID2010A Operate a forklift

TLID3035A Operate a boom type elevating work platform

*Note the following prerequisite unit requirements:

| **Unit in this qualification** | **Prerequisite unit** |
|---|---|
| CPCCCM2007B Use explosive power tools | CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry<br>or equivalent |
| CPCCDE3014A Remove non-friable asbestos | CPCCOHS1001A Work safely in the construction industry |
| CPCCLRG3001A Licence to perform rigging basic level | CPCCLDG3001A Licence to perform dogging |
| CPCCLRG3002A Licence to perform rigging intermediate level | CPCCLRG3001A Licence to perform rigging basic level |
| CPCCLRG4001A Licence to perform | CPCCLRG3002A Licence to perform rigging |


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| | |
|---|---|
| rigging advanced level | intermediate level |
| ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | ICTWHS204 Follow work health and safety and environmental policy and procedures<br>ICTTEN201 Use electrical skills in telecommunications work |
| ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule | ICTCBL236<br>Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule |
| ICTTCR301 Build a telecommunications radio structure | ICTTCR201 Use rigging practices and systems on telecommunications network structures<br>ICTTCR202Use operational safety in a telecommunications rigging environment<br>ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures |
| ICTTCR302 Install radio plant and equipment on telecommunications structures | ICTTCR201 Use rigging practices and systems on telecommunications network structures<br>ICTTCR202 Use operational safety in a telecommunications rigging environment<br>ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures |

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT30315 Certificate III in Telecommunications Rigging Installation | ICT30513 Certificate III in Telecommunications Rigging Installation | Updated to meet Standards for Training Packages.<br><br>Core has changed.<br><br>Total number of | No equivalent qualification |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | required units has increased.<br><br>Packaging rules have changed. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT30415 Certificate III in Telecommunications Network Build and Operate

## Modification History

| Release | Comments |
|---|---|
| Release 3 | This version released with ICT Information and Communications Technology Training Package Version 3.1.<br>Updates to packaging rules. Addition of ICTTEN409 to Elective Group B and to the Technician Fibre specialist elective stream. |
| Release 2 | This version released with ICT Information and Communications Technology Training Package Version 3.0. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification has been designed as a pathway for specialised work across the occupation and technology streams as outlined below, on the National Broadband Network (NBN).

This qualification, which may be undertaken as part of a traineeship, provides individuals with skills and knowledge in a range of specialised NBN broadband industry occupations specifically for the national rollout of the high speed broadband infrastructure.

In conjunction with safe working practices, one of four specialist streams is to be undertaken as described below.

### Copper Cable Jointer

This stream reflects the role of operators in performing equipment and system installation work on customer network to enable efficient access and interconnection to the NBN broadband services. This includes connection and jointing of copper cable, diagnosing and rectifying copper cable system faults, and migration, remediation and augmentation of copper services to maximise benefits of the high speed broadband connection.

### Technician Fibre


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This stream reflects the role of operators in performing equipment and system installation work on customer network to enable efficient access and interconnection to the NBN broadband services. This includes diagnosing and rectifying fibre system faults, working with active equipment, and performing integration and commissioning activities to maximise benefits of the high speed broadband connection.

### Fibre Splicer

This stream reflects the role of operators in applying optical fibre handling skills to splicing, testing and fault finding on live fibre cable in the fibre distribution network for NBN broadband networks.

### Technician Hybrid fibre coaxial (HFC)

This stream reflects the role of operators in performing equipment and system installation work on customer network to enable efficient access and interconnection to the NBN broadband services. This includes connection and termination of HFC cabling, diagnosing and rectifying complex HFC system faults, and performing commissioning activities to maximise benefits of the high speed broadband connection.

*Licensing/Regulatory Information*

Work functions in the occupational areas where this qualification may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

Cabling at the customer premises must be carried out according to requirements of the Australian Communications and Media Authority (ACMA) and relevant industry registration bodies, and in line with the specifications of the access network owner. Refer to "Pathways to ACMA Cabling Provider Rules - Cabling registration" and the mandatory industry practical hours required for registration.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 14**

**5 core** plus

**9 elective** units



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The elective units consist of:

- up to 9 units may be selected from Group A Copper cabling, or Group B Fibre cabling or Group C HFC cabling
- up to 6 units may be selected from Group D General or from elsewhere in this Training Package
- 2 units of competency may be selected from any currently endorsed Training Package or accredited course at AQF Level 3 or 4.

Elective units must be relevant to the work environment and the qualification, and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from, or available within, the ICT Information and Communications Technology Training Package.

Refer to the *Specialisations* information below, and to the Companion Volume Implementation Guide, for advice about choosing electives to support specialisations.

**Core units**

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTTEN201 Use electrical skills in telecommunications work

ICTTEN202 Use hand and power tools

ICTWHS204 Follow work health and safety and environmental policy and procedures

ICTWOR305 Supervise worksite activities

**Elective units**

**Group A Copper cabling**

ICTCBL215 Joint metallic conductor cable in access network

ICTCBL313 Modify and cutover cable

ICTCBL317 Cut over metallic conductor cable in the access network

ICTCBL318 Install and cut over metallic conductor cable to access network cabinet

ICTCBL319 Rearrange large size copper cable

ICTCBL320 Jumper metallic conductor cable in the access network

ICTTEN303 Locate, identify and rectify recurrent network faults

**Group B Fibre cabling**



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ICTBWN301 Perform tests on optical communication system and components

ICTBWN302 Install optical fibre splitters in fibre distribution hubs

ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers

ICTCBL302 Install and terminate optical fibre cable on customer premises

ICTCBL316 Install ribbon fibre cable in the FTTX distribution network

ICTTEN409 Commission an electronic system

ICTTEN416 Install, configure and test an internet protocol network

**Group C HFC cabling**

ICTRFN406 Maintain hybrid fibre coaxial broadband cable network

ICTCBL303 Install and terminate coaxial cable

ICTCBL310 Install aerial cable

ICTCBL309 Construct aerial cable supports

**Group D General**

CPCCOHS1001A Work safely in the construction industry

CPCCCM2007B* Use explosive power tools

CPCCDE3014A* Remove non-friable asbestos

CPCPCM2043A Carry out WHS requirements

CPCPCM2055A* Work safely on roofs

ICTBWN304* Work safely with live fibre to test and commission a fibre to the x installation

ICTBWN305 Use optical and radio frequency measuring instruments

ICTBWN303 Install lead-in module and cable for fibre to the premises

ICTCBL307 Install underground enclosures and conduit

ICTCBL308 Install underground cable

ICTCBL236* Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCBL237* Install maintain and modify customer premises communications cabling: ACMA Open Rule

ICTTEN302 Install telecommunications network equipment

ICTTEN310 Remove and replace electronic circuit boards in carrier equipment

ICTTEN311 Inspect, clean and handle optical fibre cable and connectors

HLTAID001 Provide cardiopulmonary resuscitation

ICTTEN207 Install and test internet protocol devices in convergence networks



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ICTWHS203 Work safely near power infrastructure

TLID2010A Operate a forklift

ICTWHS201 Provide telecommunications services safely on roofs

RIIWHS204D Work safely at heights

## Specialisations

The use of specialist streams is appropriate for this qualification in accordance with the AQF, Standards for Training Packages and the packaging rules. Where a specialist stream is achieved, testamurs must show the appropriate specialisation in brackets. Refer to the Companion Volume Implementation Guide for further advice about specialisations.

Minimum elective units required for the specific specialisations are described below.

### Copper Cable Jointer

The following 7 electives must be selected:

- CPCCOHS1001A Work safely in the construction industry
- ICTCBL215 Joint metallic conductor cable in access network
- ICTCBL317 Cut over metallic conductor cable in the access network
- ICTCBL318 Install and cut over metallic conductor cable to access network cabinet
- ICTCBL319 Rearrange large size copper cable
- ICTTEN302 Install telecommunications network equipment
- ICTTEN303 Locate, identify and rectify recurrent network faults.

### Technician Fibre

The following 8 electives must be selected:

- CPCCOHS1001A Work safely in the construction industry
- ICTBWN304* Work safely with live fibre to test and commission a fibre to the x installation
- ICTCBL302 Install and terminate optical fibre cable on customer premises
- ICTTEN302 Install telecommunications network equipment
- ICTTEN310 Remove and replace electronic circuit boards in carrier equipment
- ICTTEN311 Inspect, clean and handle optical fibre cable and connectors
- ICTTEN409 Commission an electronic system
- ICTTEN416 Install, configure and test an internet protocol network.

### Fibre Splicer

The following 7 electives must be selected:

- CPCCOHS1001A Work safely in the construction industry



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- ICTBWN302 Install optical fibre splitters in fibre distribution hubs
- ICTBWN304* Work safely with live fibre to test and commission a fibre to the x installation
- ICTBWN305 Use optical and radio frequency measuring instruments
- ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers
- ICTCBL316 Install ribbon fibre cable in the FTTX distribution network
- ICTTEN311 Inspect, clean and handle optical fibre cable and connectors.

**Technician HFC**

The following 6 electives must be selected:

- CPCCOHS1001A Work safely in the construction industry
- ICTBWN305 Use optical and radio frequency measuring instruments
- ICTCBL303 Install and terminate coaxial cable
- ICTRFN406 Maintain hybrid fibre coaxial broadband cable network
- ICTTEN302 Install telecommunications network equipment
- ICTCBL310 Install aerial cable

Plus:

- CPCPCM2055A* Work safely on roofs and CPCPCM2043A Carry out WHS requirements

or

- ICTWHS201 Provide telecommunications services safely on roofs

or

- RIIWHS204D Work safely at heights.

*Note the following prerequisite unit requirements:

| **Unit in this qualification** | **Prerequisite unit** |
|---|---|
| CPCCCM2007B Use explosive power tools | CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry |
| CPCCDE3014A Remove non-friable asbestos | CPCCOHS1001A Work safely in the construction industry |
| CPCPCM2055A Work safely on roofs | CPCPCM2043A Carry out WHS requirements |
| ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation | ICTBWN305 Use optical and radio frequency measuring instruments<br>ICTWHS204 Follow work health and safety and |


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| | |
|---|---|
| | environmental policy and procedures |
| ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | ICTTEN201 Use electrical skills in telecommunications work<br>ICTWHS204 Follow work health and safety and environmental policy and procedures |
| ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule | ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule |

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT30415 Certificate III in Telecommunications Network Build and Operate (Release 3) | ICT30415 Certificate III in Telecommunications Network Build and Operate (Release 2) | Amendments to elective bank groups.<br>Occupational outcomes and specialisations clarified. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT30515 Certificate III in Telecommunications Technology

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with ICT Information and Communications Technology Training Package Version 3.1.<br>Update to correct typographical error in unit title. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification prepares an individual for entry into the telecommunications industry and its convergent technologies, including radio, optical, data and internet protocol (IP) networks.

This qualification reflects the role of an operator in the telecommunications industry who can apply a broad range of competencies using a defined range of skills where some discretion and judgement is required in the selection, installation and configuration of equipment in convergence technologies that integrate radio, optical and internet protocol (IP) based applications.

This role includes assessing installation requirements, planning and performing installations, testing installed equipment and fault finding. It involves a degree of autonomy and may include some supervision of others. Work is performed according to known routines and procedures and there is some accountability for the quality of outcomes.

The following specialisations can be achieved through selection of specific units of competency:

- Optical Networks
- Wireless Networks
- Cabling Networks
- Telecommunications Networking
- Radio Communications.

Licensing/Regulatory Information


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Work functions in the occupational areas where this qualification may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

Cabling at the customer premises must be carried out according to requirements of the Australian Communications and Media Authority (ACMA) and relevant industry registration bodies, and in line with the specifications of the access network owner. Refer to "Pathways to ACMA Cabling Provider Rules - Cabling registration" and the mandatory industry practical hours required for registration.

# Entry Requirements

Nil

# Packaging Rules

**Total number of units = 16**

**7 core units,** plus

**9 elective** units

The elective units consist of:

- 1 elective unit from Group A workplace units
- up to 8 elective units from any of the elective groups below
- up to 2 units of competency may be selected from any currently endorsed Training Package or accredited course at AQF Level 3 or 4.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the Australian Qualifications Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

Refer to the *Specialisations* information below, and to the Companion Volume Implementation Guide, for advice about choosing electives to support specialisations in particular sectors of the information and communications industry.

**CORE UNITS**


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ICTCBL306 Locate and identify cable system faults

ICTTEN201 Use electrical skills in telecommunications work

ICTTEN202 Use hand and power tools

ICTTEN207 Install and test internet protocol devices in convergence networks

ICTTEN302 Install telecommunications network equipment

ICTWHS204 Follow work health and safety and environmental policy and procedures

ICTWOR201 Work effectively in telecommunications technology

## ELECTIVE UNITS

### Group A - Workplace units

BSBSMB305 Comply with regulatory, taxation and insurance requirements for the micro business

BSBSMB306 Plan a home based business

BSBSUS401 Implement and monitor environmentally sustainable work practises

ICTEDU301 Train customers in new technology

ICTSAS305 Provide ICT advice to clients

ICTWOR301 Organise resources

ICTWOR302 Organise material supply

ICTWOR303 Schedule resources

ICTWOR304 Manage spare parts

ICTWOR305 Supervise worksite activities

ICTWOR306 Resolve technical enquiries using multiple information systems

ICTWOR307 Collect and analyse technical information

### General Electives

### Group B Optical networks

ICTBWN301 Perform tests on optical communication system and components

ICTBWN302 Install optical fibre splitters in fibre distribution hubs

ICTBWN303 Install lead-in module and cable for fibre to the premises

ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation*

ICTBWN305 Use optical and radio frequency measuring instruments



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## Group C Cabling

ICTCBL201 Install customer cable support systems, and

ICTCBL202 Place and secure customer cable, and

ICTCBL203 Terminate metallic conductor customer cable

ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers

ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule*

ICTCBL215 Joint metallic conductor cable in access network

ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule*

ICTCBL219 Apply safe technical work practices for cabling registration when configuring an ADSL circuit

ICTCBL220 Install a cable lead-in

ICTCBL301 Install, terminate and certify structured cabling installation

ICTCBL302 Install and terminate optical fibre cable on customer premises

ICTCBL303 Install and terminate coaxial cable

ICTCBL304 Perform cable and system test on customer premises

ICTCBL305 Hand over cable systems and equipment

ICTCBL307 Install underground enclosures and conduit

ICTCBL308 Install underground cable

ICTCBL309 Construct aerial cable supports

ICTCBL310 Install aerial cable

ICTCBL311 Install systems and equipment on customer premises

ICTCBL312 Cutover new systems and equipment on customer premises

ICTCBL313 Modify and cutover cable

ICTCBL314 Install network cable equipment

ICTCBL315 Maintain cable network

ICTCBL316 Install ribbon fibre cable in the FTTX distribution network

ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards

ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule*

## Group D Digital reception technology

ICTDRE301 Install digital reception equipment



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ICTDRE302 Locate and rectify digital reception equipment faults

ICTDRE303 Install a complex digital reception system

**Group E ICT use**

ICTICT302 Install and optimise operating system software

ICTICT303 Connect internal hardware components

ICTICT304 Implement system software changes

ICTICT306 Migrate to new technology

ICTNWK305 Install and manage network protocols

ICTSAS301 Run standard diagnostic tests

ICTSAS303 Care for computer hardware

ICTSAS304 Provide basic system administration

**Group F Work health and safety**

CPCCCM2007B Use explosive power tools*

CPCCDE3014A Remove non-friable asbestos*

CPCCOHS1001A Work safely in the construction industry

CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry *(Note: CPCCOHS2001A is a prerequisite unit for CPCCCM2007B. It is not to be selected without CPCCCM2007B.)*

ICTWHS201 Provide telecommunications services safely on roofs

ICTWHS203 Work safely near power infrastructure

RIIWHS204D Work safely at heights

**Group G Radio frequency networks**

ICTBWN305 Use optical and radio frequency measuring instruments

ICTRFN301 Install a radio communications antenna and feedline

ICTRFN303 Install WiMAX customer premises equipment broadband wireless access equipment

ICTRFN305 Operate and maintain radio communications technical instruments and field equipment

ICTRFN401 Conduct radio frequency measurements

ICTRFN406 Maintain hybrid fibre coaxial broadband cable network

ICTRFN302 Install mobile telecommunications in motor vehicles

ICTRFN304 Construct and test a radio communications device



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### Group H Telecommunications network

ICTTEN301 Provide infrastructure for telecommunications network equipment

ICTTEN303 Locate, identify and rectify recurrent network faults

ICTTEN304 Recover customer premises equipment

ICTTEN305 Refurbish customer premises equipment

ICTTEN306 Commission an electronic unit

ICTTEN307 Repair and replace telecommunications network hardware

ICTTEN308 Maintain an electronic system

ICTTEN309 Provide infrastructure for telecommunications network customer equipment

ICTTEN416 Install, configure and test an internet protocol network

### Specialisations

The use of specialist streams is appropriate for this qualification in accordance with the AQF, Standards for Training Packages and the packaging rules. Where a specialist stream is achieved, testamurs must show the appropriate specialisation in brackets. Refer to the Companion Volume Implementation Guide for further advice about specialisations.

Minimum elective units required for the specific specialisations are described below.

### Optical Networks

At least 4 of the 8 electives must be selected from the following list:

- ICTBWN301 Perform tests on optical communication system and components
- ICTBWN302 Install optical fibre splitters in fibre distribution hubs
- ICTBWN303 Install lead-in module and cable for fibre to the premises
- ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation*
- ICTBWN305 Use optical and radio frequency measuring instruments.

### Wireless Networks

At least 4 of the 8 electives must be selected from the following list:

- ICTRFN301 Install a radio communications antenna and feedline
- ICTRFN303 Install WiMAX customer premises equipment broadband wireless access equipment
- ICTRFN305 Operate and maintain radio communications technical instruments and field equipment
- ICTRFN401 Conduct radio frequency measurements


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- ICTRFN406 Maintain hybrid fibre coaxial broadband cable network.

**Cabling Networks**

The following unit must be selected:

- ICTTEN309 Provide infrastructure for telecommunications network customer equipment.

At least 3 of the 7 remaining electives must be selected from Group C Cabling.

**Radio Communications**

The following unit must be selected:

- ICTWOR307 Collect and analyse technical information.

At least 3 of the 7 remaining electives must be selected from Group G Radio frequency networks.

**Telecommunications Networking**

The following unit must be selected:

- ICTWOR307 Collect and analyse technical information.

At least 3 of the 7 remaining electives must be selected from Group H Telecommunications network.

*Note the following prerequisite unit requirements:

| **Unit in this qualification** | **Prerequisite unit** |
|---|---|
| CPCCCM2007B Use explosive power tools | CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry |
| CPCCDE3014A Remove non-friable asbestos | CPCCOHS1001A Work safely in the construction industry |
| ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation | ICTWHS201 Follow work health and safety and environmental policies and procedures |


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| | |
|---|---|
| ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | ICTWHS204 Follow work health and safety and environmental policy and procedures<br>ICTTEN201 Use electrical skills in telecommunications work |
| ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule | ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule |
| ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule | ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule<br>OR<br>ICTCBL201 Install customer cable support systems, and ICTCBL202 Place and secure customer cable, and ICTCBL203 Terminate metallic conductor customer cable and ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards |

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT30515 Certificate III in Telecommunications Technology | ICT30113 Certificate III in Broadband and Wireless Networks Technology<br><br>ICT30213 Certificate III in Telecommunications<br><br>ICT30313 Certificate III in Telecommunications Cabling | Updated to meet Standards for Training Packages.<br><br>Changed packaging rules.<br><br>Changed core units. | No equivalent qualification |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | ICT30613 Certificate III in Broadband and Wireless Networks<br><br>ICT30813 Certificate III in Telecommunications Fixed Wireless Installation | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT40115 Certificate IV in Information Technology

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in a wide range of general information and communications technology (ICT) technologies and to support small to medium enterprises (SMEs) that require broader rather than more specialised ICT support.

Persons working at this level apply a wide range of knowledge and skills in basic networking, ICT support, database development, programming and web development support; working safely and ethically in a sustainable work environment.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 20**

**5 core units** plus

**15 elective units**



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The elective units consist of:

- up to 15 from the specialist elective groups below, with a maximum of 5 units from any one group:
  Group A Networking
  Group B Programming
  Group C IT support
  Group D Web design and development
  Group E Digital games
  Group F Digital media technologies
  Group G Project management
- up to 5 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBWHS304 Participate effectively in WHS communication and consultation processes

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTICT202 Work and communicate effectively in an ICT environment

ICTICT401 Determine and confirm client business requirements

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

**Elective units**

**Specialist elective units**

**Group A Networking**

ICTICT423 Select cloud storage strategies

ICTNWK401 Install and manage a server

ICTNWK402 Install and configure virtual machines for sustainable ICT

ICTNWK403 Manage network and data integrity

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK405 Build a small wireless local area network

ICTNWK406 Install, configure and test network security

ICTNWK407 Install and configure client-server applications and services

ICTNWK408 Configure a desktop environment



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ICTNWK409 Create scripts for networking

ICTNWK410 Install hardware to a network

ICTNWK411 Deploy software to networked computers

ICTNWK412 Create network documentation

ICTNWK414 Create a common gateway interface script

ICTNWK416 Build security into virtual private networks

ICTNWK417 Build an enterprise wireless network

ICTNWK418 Implement backbone technologies in a local area network

ICTNWK419 Identify and use current virtualisation technologies

ICTSAS307 Install, configure and secure a small office or home office network

**Group B Programming**

ICTICT410 Conduct post-implementation ICT system reviews

ICTICT420 Develop client user interface

ICTPRG401 Maintain open-source code programs

ICTPRG402 Apply query language

ICTPRG403 Develop data-driven applications

ICTPRG404 Test applications

ICTPRG405 Automate processes

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG407 Write script for software applications

ICTPRG409 Develop mobile applications

ICTPRG410 Build a user interface

ICTPRG412 Configure and maintain databases

ICTPRG413 Use a library or pre-existing components

ICTPRG414 Apply introductory programming skills in another language

ICTPRG415 Apply skills in object-oriented design

ICTPRG416 Manage a software component reuse library

ICTPRG417 Apply mathematical techniques for software development

ICTPRG418 Apply intermediate programming skills in another language

ICTPRG419 Analyse software requirements

ICTPRG425 Use structured query language

ICTPRG426 Prepare software development review

ICTPRG427 Use XML effectively



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ICTPRG428 Use regular expressions in programming languages

### Group C ICT support

ICTDBS403 Create basic databases

ICTDBS407 Monitor physical database implementation

ICTDBS408 Link an RFID system to a database

ICTDBS503 Create a data warehouse

ICTICT402 Determine project specifications and secure client agreement

ICTICT403 Apply software development methodologies

ICTICT404 Use online learning tools

ICTICT405 Develop detailed technical design

ICTICT406 Build a graphical user interface

ICTICT408 Create technical documentation

ICTICT411 Select and employ software and hardware testing tools

ICTICT412 Coordinate and maintain ICT work teams

ICTICT413 Relate to clients on a business level

ICTICT415 Provide one-to-one instruction

ICTICT416 Contribute to the development of strategic plans

ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTSAD401 Develop and present feasibility reports

ICTSAS402 Implement configuration management strategies

ICTSAS403 Review site environmental factors prior to ICT system implementation

ICTSAS404 Acquire ICT system components

ICTSAS405 Identify and evaluate ICT industry vendor technologies

ICTSAS407 Conduct pre-installation audit for software installation

ICTSAS408 Complete data transition in data migration process

ICTSAS409 Manage risks involving ICT systems and technology

ICTSAS410 Identify and resolve client ICT problems

ICTSAS411 Assist with policy development for client support procedures

ICTSAS412 Action change requests

ICTSAS413 Manage resolution of system faults on a live system

ICTSAS414 Evaluate system status

ICTSAS415 Optimise ICT system performance



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ICTSAS416 Implement maintenance procedures

ICTSAS417 Undertake ICT system capacity planning

ICTSAS418 Monitor and administer security of an ICT system

ICTSAS419 Support system software

ICTSAS420 Provide first-level remote help-desk support

ICTSAS421 Support users and troubleshoot desktop applications

ICTSAS424 Support different operating systems

**Group D Web design and development**

ICTICT407 Maintain website information standards

ICTWEB401 Design a website to meet technical requirements

ICTWEB402 Confirm accessibility of websites for people with special needs

ICTWEB403 Transfer content to a website using commercial packages

ICTWEB404 Maintain website performance

ICTWEB405 Monitor traffic and compile website traffic reports

ICTWEB406 Create website testing procedures

ICTWEB407 Conduct operational acceptance tests of websites

ICTWEB408 Ensure basic website security

ICTWEB409 Develop cascading style sheets

ICTWEB410 Apply web authoring tool to convert client data for websites

ICTWEB411 Produce basic client-side script for dynamic web pages

ICTWEB412 Produce interactive web animation

ICTWEB413 Optimise search engines

ICTWEB414 Design simple web page layouts

ICTWEB415 Produce server-side script for dynamic web pages

ICTWEB416 Customise content management system

ICTWEB417 Integrate social web technologies

ICTWEB418 Use development software and ICT tools to build a basic website

ICTWEB419 Develop guidelines for uploading information to a website

ICTWEB420 Write content for web pages

ICTWEB421 Ensure website content meets technical protocols and standards

ICTWEB422 Ensure website access and useability

ICTWEB423 Ensure dynamic website security

ICTWEB424 Evaluate and select a web hosting service



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ICTWEB425 Apply structured query language to extract and manipulate data

ICTWEB429 Create a markup language document to specification

**Group E Digital games**

ICTGAM401 Produce an interactive game

ICTGAM402 Identify and apply principles of games design and game playing

ICTGAM403 Create design documents for interactive games

ICTGAM405 Write story and content for digital games

ICTGAM406 Create visual design components for interactive games

ICTGAM407 Write scripts for interactive games

ICTGAM408 Use 3-D animation interface and toolsets

ICTGAM409 Create 3-D characters for interactive games

ICTGAM410 Develop 3-D components for interactive games

ICTGAM412 Design interactive media

ICTGAM413 Design and create 3-D digital models

ICTGAM414 Create audio for digital games

ICTGAM415 Develop simple environments for 3-D games

ICTGAM416 Prepare and complete image rendering processes

ICTGAM417 Apply digital effects to interactive products

ICTICT419 Work effectively in the digital media industry

**Group F Digital media technologies**

BSBCRT401 Articulate, present and debate ideas

CUAANM301 Create 2D digital animations

CUAANM302 Create 3D digital animations

CUAANM402 Create digital visual effects

CUADIG401 Author interactive media

CUAPPM407 Create storyboards

CUASOU202 Perform basic sound editing

CUASOU304 Prepare audio assets

ICTDMT401 Create visual design components for digital media

ICTDMT402 Produce interactive animation

ICTDMT403 Produce and edit digital images



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**Group G Project management**

ICTPMG401 Support small scale ICT projects

# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT40115 Certificate IV in Information Technology (Release 2) | ICT40115 Certificate IV in Information Technology (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT40215 Certificate IV in Information Technology Support

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in supporting clients in a range of technical areas. The qualification has a strong information technology base of core units with the potential for inclusion of a range of broader industry-specific units in the areas of service desk, database, sustainability and network support to suit particular needs.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 22**

**8 core units** *plus*

**14 elective units**

The elective units consist of:



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- 5 from one of the following specialist elective groups:
  Group A Database support
  Group B Network communications
  Group C Service desk
  Group D Sustainability.

Of the remaining elective units:

- up to 9 may be from the specialist elective groups below or from Group E general elective units below
- up to 4 may be from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBWHS403 Contribute to implementing and maintaining WHS consultation and participation processes

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTICT401 Determine and confirm client business requirements

ICTICT408 Create technical documentation

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTSAS307 Install, configure and secure a small office or home office network

ICTSAS410 Identify and resolve client ICT problems

ICTSAS412 Action change requests

**Elective units**

**Specialist elective units**

**Group A Database support**

ICTDBS402 Complete database backup and restore

ICTDBS404 Identify and resolve common database performance problems

ICTDBS409 Monitor and administer a database

ICTDBS412 Build a database

ICTPRG425 Use structured query language


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### Group B Network communications

ICTNWK401 Install and manage a server

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK405 Build a small wireless local area network

ICTNWK406 Install, configure and test network security

ICTNWK408 Configure a desktop environment

### Group C Service desk

ICTICT421 Connect, maintain and configure hardware components

ICTSAS414 Evaluate system status

ICTSAS421 Support users and troubleshoot desktop applications

ICTSAS425 Configure and troubleshoot operating system software

ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

### Group D Sustainability

BSBSUS501 Develop workplace policy and procedures for sustainability

ICTSUS401 Install and test renewable energy system for ICT networks

ICTSUS402 Install and test power saving hardware

ICTSUS403 Install and test power management software

ICTSUS404 Install thin client applications for power over ethernet

## General elective units

### Group E

BSBCRT401 Articulate, present and debate ideas

ICTCBL236* Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCBL237* Install, maintain and modify customer premises communications cabling: ACMA Open Rule

ICTCBL219 Apply safe technical work practices for cabling registration when configuring ADSL circuits

ICTDBS401 Identify physical database requirements

ICTDBS403 Create basic databases

ICTICT413 Relate to clients on a business level

ICTICT415 Provide one-to-one instruction



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ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTICT422 Participate in ICT services

ICTICT423 Select cloud storage strategies

ICTNWK409 Create scripts for networking

ICTNWK410 Install hardware to a network

ICTNWK411 Deploy software to networked computers

ICTNWK419 Identify and use current virtualisation technologies

ICTOPN402 Use advanced optical test equipment

ICTPMG401 Support small scale ICT projects

ICTPRG405 Automate processes

ICTSAD401 Develop and present feasibility reports

ICTSAS411 Assist with policy development for client support procedures

ICTSAS413 Manage resolution of system faults on a live system

ICTSAS416 Implement maintenance procedures

ICTSAS420 Provide first-level remote help-desk support

ICTSAS424 Support different operating systems

ICTSAS518 Install and upgrade operating systems

ICTTEN417 Install, configure and test a router

ICTTEN201 Use electrical skills in telecommunications work

ICTWEB415 Produce server-side script for dynamic web pages

ICTWHS204 Follow work health and safety environmental policy and procedures

* Note the following prerequisite unit requirements:

| Unit in this qualification | Prerequisite unit |
|---|---|
| ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | ICTTEN201 Use electrical skills in telecommunications work<br>ICTWHS204 Follow work health and safety environmental policy and procedures |
| ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule | ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule |


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# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT40215 Certificate IV in Information Technology Support (Release 2) | ICT40215 Certificate IV in Information Technology Support (Release 1) | Updated unit codes.<br><br>Updated elective unit list. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT40315 Certificate IV in Web-Based Technologies

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides an individual with the skills and knowledge to design, develop, build and administer websites using a range of website technologies.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 22**

**8 core units** *plus*

**14 elective units**

*The elective units consist of:*

- *5 from one of the following specialist groups:*
  *Group A Administration*
  *Group B Design and development.*


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*Of the remaining* elective *units:*

- *up to 9 may be from the specialist elective groups below or from Group C general elective units below*
- *up to 4 may be from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate IV or Diploma level.*

*The elective units chosen must be relevant to the work outcome and meet local industry needs.*

**Core units**

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTICT401 Determine and confirm client business requirements

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTWEB401 Design a website to meet technical requirements

ICTWEB402 Confirm accessibility of websites for people with special needs

ICTWEB403 Transfer content to a website using commercial packages

ICTWEB424 Evaluate and select a web hosting service

ICTWEB429 Create a markup language document to specification

**Elective units**

**Specialist elective units**

**Group A Administration**

ICTWEB404 Maintain website performance

ICTWEB405 Monitor traffic and compile website traffic reports

ICTWEB406 Create website testing procedures

ICTWEB407 Conduct operational acceptance tests of websites

ICTWEB408 Ensure basic website security

**Group B Design and development**

*I*CTDBS403 Create basic databases

ICTWEB409 Develop cascading style sheets

ICTWEB411 Produce basic client-side script for dynamic web pages

ICTWEB415 Produce server-side script for dynamic web pages

ICTWEB425 Apply structured query language to extract and manipulate data



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**General elective units**

**Group C**

BSBCRT401 Articulate, present and debate ideas

BSBSUS401 Implement and monitor environmentally sustainable work practices

CUAPPM407 Create storyboards

ICTICT403 Apply software development methodologies

ICTICT407 Maintain website information standards

ICTICT408 Create technical documentation

ICTICT417 Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICTICT420 Develop client user interface

ICTNWK409 Create scripts for networking

ICTPMG401 Support small scale ICT projects

ICTPRG405 Automate processes

ICTWEB410 Apply web authoring tool to convert client data for websites

ICTWEB412 Produce interactive web animation

ICTWEB413 Optimise search engines

ICTWEB414 Design simple web page layouts

ICTWEB416 Customise content management system

ICTWEB417 Integrate social web technologies

ICTWEB421 Ensure website content meets technical protocols and standards

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT40315 Certificate IV in Web-Based Technologies (Release 2) | ICT40315 Certificate IV in Web-Based Technologies (Release 1) | Updated unit codes. | Equivalent qualification |



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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT40415 Certificate IV in Information Technology Networking

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to install and manage small scale networks, either as an independent network support technician or as part of a team.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 17**

**8 core units** *plus*

**9 elective units**

The elective units consist of:

- up to 9 from the elective units listed below



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- up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTICT401 Determine and confirm client business requirements

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTNWK401 Install and manage a server

ICTNWK402 Install and configure virtual machines for sustainable ICT

ICTNWK403 Manage network and data integrity

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTTEN416 Install, configure and test an internet protocol network

**Elective units**

BSBCRT401 Articulate, present and debate ideas

BSBWOR404 Develop work priorities

ICTICT403 Apply software development methodologies

ICTICT408 Create technical documentation

ICTICT417 Identify, evaluate and apply current industry-specific technologies to meet industry standards

ICTICT423 Select cloud storage strategies

ICTNWK405 Build a small wireless local area network

ICTNWK406 Install, configure and test network security

ICTNWK407 Install and configure client-server applications and services

ICTNWK408 Configure a desktop environment

ICTNWK409 Create scripts for networking

ICTNWK410 Install hardware to a network

ICTNWK411 Deploy software to networked computers

ICTNWK412 Create network documentation

ICTNWK419 Identify and use current virtualisation technologies

ICTPMG401 Support small scale ICT projects



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ICTPRG425 Use structured query language

ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

ICTOPN402 Use advanced optical test equipment

ICTSUS401 Install and test renewable energy system for ICT networks

ICTSUS402 Install and test power saving hardware

ICTSUS403 Install and test power management software

ICTSUS404 Install thin client applications for power over ethernet

ICTTEN417 Install, configure and test a router

ICTTEN418 Install and test a radio frequency identification system

ICTTEN419 Implement and troubleshoot enterprise routers and switches

ICTTEN420 Design, install and configure an internetwork

ICTTEN513 Install, configure and test a local area network switch

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT40415 Certificate IV in Information Technology Networking Release 2) | ICT40415 Certificate IV in Information Technology Networking (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT40515 Certificate IV in Programming

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This qualification first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to develop basic programming skills in the most commonly used programming languages.

An individual with this qualification could work as an assistant programmer in a team of software developers, or as a support programmer to senior programmers or systems analysts.

### Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 18**

**10 core units** plus

**8 elective units**

The elective units consist of:

- up to 8 from the elective units listed below
- up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate IV or Diploma level.


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The elective units chosen must be relevant to the work outcome and meet local industry needs.

### Core units

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTPRG402 Apply query language

ICTPRG403 Develop data-driven applications

ICTPRG404 Test applications

ICTPRG405 Automate processes

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG410 Build a user interface

ICTPRG414 Apply introductory programming skills in another language

ICTPRG415 Apply skills in object-oriented design

ICTPRG419 Analyse software requirements

### Elective units

BSBCRT401 Articulate, present and debate ideas

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTDBS403 Create basic databases

ICTICT404 Use online learning tools

ICTICT408 Create technical documentation

ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTICT420 Develop client user interface

ICTPMG401 Support small scale ICT projects

ICTPRG401 Maintain open-source code programs

ICTPRG407 Write script for software applications

ICTPRG409 Develop mobile applications

ICTPRG412 Configure and maintain databases

ICTPRG413 Use a library or pre-existing components

ICTPRG418 Apply intermediate programming skills in another language



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ICTPRG427 Use XML effectively

ICTPRG428 Use regular expressions in programming languages

ICTPRG527 Apply intermediate object-oriented language skills

ICTSAD401 Develop and present feasibility reports

ICTSAD501 Model data objects

ICTSAD502 Model data processes

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT40515 Certificate IV in Programming | ICA40511 Certificate IV in Programming | Updated to meet Standards for Training Packages | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT40615 Certificate IV in Information Technology Testing

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in a range of information and communications technology (ICT) positions directly related to testing, either as an assistant tester, working mostly independently or as part of a team.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 20**

**8 core units** *plus*

**12 elective units**

The elective units consist of:

- up to 12 from the elective units listed below



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- up to 4 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTICT401 Determine and confirm client business requirements

ICTICT408 Create technical documentation

ICTICT411 Select and employ software and hardware testing tools

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTPMG401 Support small scale ICT projects

ICTPRG405 Automate processes

ICTSAS301 Run standard diagnostic tests

**Elective units**

BSBCRT401 Articulate, present and debate ideas

ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTNWK403 Manage network and data integrity

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK501 Plan, implement and test enterprise communication solutions

ICTPRG404 Test applications

ICTSAS401 Perform unit test for a class

ICTSAS503 Perform systems tests

ICTSAS504 Develop and conduct client acceptance test

ICTSAS513 Develop detailed test plans

ICTSAS514 Perform integration tests

ICTSAS515 Manage the testing process

ICTSAS516 Perform stress and load tests on integrated platforms

ICTSUS401 Install and test renewable energy system for ICT networks

ICTTEN416 Install, configure and test an internet protocol network

ICTWEB406 Create website testing procedures



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ICTWEB407 Conduct operational acceptance tests of websites

ICTWEB423 Ensure dynamic website security

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT40615 Certificate IV in Information Technology Testing (Release 2) | ICT40615 Certificate IV in Information Technology Testing (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT40715 Certificate IV in Systems Analysis and Design

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to work as part of a project team to analyse and redesign existing systems to meet client business requirements.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 22**

**7 core units plus**

**15 elective units**

The elective units consist of:

- up to 15 from the elective units listed below
- up to 4 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate IV or Diploma level.


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The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTICT401 Determine and confirm client business requirements

ICTICT403 Apply software development methodologies

ICTICT405 Develop detailed technical design

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTPRG405 Automate processes

ICTSAD401 Develop and present feasibility reports

**Elective units**

BSBCRT401 Articulate, present and debate ideas

BSBWOR301 Organise personal work priorities and development

ICTDBS401 Identify physical database requirements

ICTDBS412 Build a database

ICTICT402 Determine project specifications and secure client agreement

ICTICT408 Create technical documentation

ICTICT411 Select and employ software and hardware testing tools

ICTICT412 Coordinate and maintain ICT work teams

ICTICT413 Relate to clients on a business level

ICTICT416 Contribute to the development of strategic plans

ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTPMG401 Support small scale ICT projects

ICTPRG404 Test applications

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG414 Apply introductory programming skills in another language

ICTPRG415 Apply skills in object-oriented design

ICTPRG419 Analyse software requirements

ICTPRG425 Use structured query language

ICTTEN410 Locate, diagnose and rectify faults



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# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT40715 Certificate IV in Systems Analysis and Design (Release 2) | ICT40715 Certificate IV in Systems Analysis and Design (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT40815 Certificate IV in Digital Media Technologies

## Modification History

| Release | Comments |
|---|---|
| Release 3 | This version released with ICT Information and Communications Technology Training Package version 3.1.<br>Release 3 created to update unit codes. |
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent to design, develop and use digital media technologies as an assistant information and communications technology (ICT) specialist working independently or as part of a larger development team

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 17**

**7 core units** *plus*

**10 elective units**

The elective units consist of:



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- 5 units from one of the following specialist groups:
  Group A Web development
  Group B Programming
  Group C Interactive media.

Of the remaining elective units:

- up to 5 may be from the specialist elective groups below or from Group D general elective units below or elsewhere in ICT Information and Communications Technology Training Package
- up to 3 may be from any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBCRT401 Articulate, present and debate ideas

BSBWHS304 Participate effectively in WHS communication and consultation processes

CUADIG401 Author interactive media

ICTICT404 Use online learning tools

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT419 Work effectively in the digital media industry

ICTPMG401 Support small scale ICT projects

**Specialist elective units**

**Group A Web development**

ICTWEB402 Confirm accessibility of websites for people with special needs

ICTWEB406 Create website testing procedures

ICTWEB407 Conduct operational acceptance tests of websites

ICTWEB409 Develop cascading style sheets

ICTWEB411 Produce basic client-side script for dynamic web pages

ICTWEB412 Produce interactive web animation

ICTWEB414 Design simple web page layouts

ICTWEB415 Produce server-side script for dynamic web pages

ICTWEB421 Ensure website content meets technical protocols and standards


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ICTWEB425 Apply structured query language to extract and manipulate data

**Group B Programming**

ICTPRG301 Apply introductory programming techniques

ICTPRG402 Apply query language

ICTPRG405 Automate processes

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG407 Write script for software applications

ICTPRG412 Configure and maintain databases

ICTPRG414 Apply introductory programming skills in another language

**Group C Interactive media**

CUAANM301 Create 2D digital animations

CUAANM302 Create 3D digital animations

CUAANM402 Create digital visual effects

CUACAM301 Shoot material for screen productions

ICTDMT401 Create visual design components for digital media

ICTDMT402 Produce interactive animation

ICTDMT403 Produce and edit digital images

ICTGAM401 Produce an interactive game

ICTGAM403 Create design documents for interactive games

ICTGAM405 Write story and content for digital games

ICTGAM413 Design and create 3-D digital models

CUAPOS401 Edit screen content for fast turnaround

CUAPOS402 Manage media assets

CUAPPM407 Create storyboards

CUASOU202 Perform basic sound editing

CUASOU304 Prepare audio assets

**General elective units**

**Group D**

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTDBS412 Build a database

ICTICT408 Create technical documentation



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ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT40815 Certificate IV in Digital Media Technologies (Release 3) | ICT40815 Certificate IV in Digital Media Technologies (Release 2) | Updates to clarify packaging rules. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT40915 Certificate IV in Digital and Interactive Games

## Modification History

| Release | Comments |
|---|---|
| Release 3 | This version released with ICT Information and Communications Technology Training Package version 3.1.<br>Release 3 created to clarify packaging rules. |
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in supporting the design, development and programming of basic digital games briefs as part of a larger development team. The qualification has a small suite of core units with an opportunity to select units from specialist groups of electives across the different artistic or programming fields of the industry.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 16**

**4 core units** *plus*

**12 elective units**



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The elective units consist of:

- 5 units from one of the following specialist elective groups:
  Group A Design
  Group B Programming
  Group C Art.

Of the remaining elective units:

- up to 7 may be from the specialist elective groups below or from Group D general elective units below or elsewhere in ICT Information and Communications Technology Training Package
- up to 3 may be from any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTGAM401 Produce an interactive game

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT419 Work effectively in the digital media industry

**Elective units**

**Specialist elective units**

**Group A Design**

CUAPPM407 Create storyboards

ICTGAM402 Identify and apply principles of games design and game playing

ICTGAM403 Create design documents for interactive games

ICTGAM405 Write story and content for digital games

ICTGAM406 Create visual design components for interactive games

ICTGAM407 Write scripts for interactive games

**Group B Programming**

ICTGAM404 Apply artificial intelligence in game development

ICTICT406 Build a graphical user interface



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ICTPRG301 Apply introductory programming techniques

ICTPRG405 Automate processes

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG413 Use a library or pre-existing components

ICTPRG415 Apply skills in object-oriented design

ICTPRG417 Apply mathematical techniques for software development

ICTPRG527 Apply intermediate object-oriented language skills

**Group C Art**

CUAANM301 Create 2D digital animations

CUAANM302 Create 3D digital animations

CUAANM303 Create 3D digital models

CUAANM402 Create digital visual effects

CUADRA201 Develop drawing skills

ICTDMT402 Produce interactive animation

ICTDMT403 Produce and edit digital images

ICTGAM301 Apply simple modelling techniques

ICTGAM302 Design and apply simple textures to digital art

ICTGAM303 Review and apply the principles of animation

ICTGAM408 Use 3-D animation interface and toolsets

ICTGAM409 Create 3-D characters for interactive games

ICTGAM410 Develop 3-D components for interactive games

ICTGAM412 Design interactive media

ICTGAM413 Design and create 3-D digital models

ICTGAM414 Create audio for digital games

ICTGAM416 Prepare and complete image rendering processes

ICTGAM417 Apply digital effects to interactive products

ICTGAM418 Use simple modelling for animation

**General elective units**

**Group D**

BSBCRT401 Articulate, present and debate ideas

ICTICT408 Create technical documentation



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ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTICT420 Develop client user interface

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT40915 Certificate IV in Digital and Interactive Games (Release 3) | ICT40915 Certificate IV in Digital and Interactive Games (Release 2) | Updates to clarify packaging rules | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT41015 Certificate IV in Computer Systems Technology

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to install and administer simple networks, servers, and client desktop deployments either as an independent information and communications technology (ICT) specialist or as part of a team.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 20**

**12 core units** *plus*

**8 elective units**

The elective units consist of:

- up to 8 from the elective units listed below


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- up to 4 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Certificate IV or Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBSUS401 Implement and monitor environmentally sustainable work practices

BSBWHS304 Participate effectively in WHS communication and consultation processes

ICTICT401 Determine and confirm client business requirements

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT421 Connect, maintain and configure hardware components

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK405 Build a small wireless local area network

ICTPRG414 Apply introductory programming skills in another language

ICTSAS425 Configure and troubleshoot operating system software

ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

ICTTEN417 Install, configure and test a router

ICTWEB411 Produce basic client-side script for dynamic web pages

**Elective units**

BSBCRT401 Articulate, present and debate ideas

ICTICT405 Develop detailed technical design

ICTICT408 Create technical documentation

ICTICT412 Coordinate and maintain ICT work teams

ICTICT415 Provide one-to-one instruction

ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards

ICTICT423 Select cloud storage strategies

ICTNWK401 Install and manage a server

ICTNWK402 Install and configure virtual machines for sustainable ICT

ICTNWK403 Manage network and data integrity

ICTNWK407 Install and configure client-server applications and services

ICTNWK408 Configure a desktop environment



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ICTNWK419 Identify and use current virtualisation technologies

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTPMG401 Support small scale ICT projects

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG409 Develop mobile applications

ICTSAS307 Install, configure and secure a small office or home office network

ICTSAS420 Provide first-level remote help-desk support

ICTTEN202 Use hand and power tools

ICTTEN416 Install, configure and test an internet protocol network

ICTWEB414 Design simple web page layouts

ICTWEB415 Produce server-side script for dynamic web pages

ICTWEB425 Apply structured query language to extract and manipulate data

ICTWEB429 Create a markup language document to specification

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT41015 Certificate IV in Computer Systems Technology (Release 2) | ICT41015 Certificate IV in Computer Systems Technology (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT41115 Certificate IV in Telecommunications Network Design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification reflects the role of a technician with a range of telecommunications skills and extensive knowledge of the access, building and core networks and client capabilities of the service provider. Graduates can design the customer access network, design the building network, design the core network for the service provider and asset owner and design carrier equipment infrastructure.

This qualification prepares an individual for entry into design for network additions and implementations to accommodate network growth and new technologies within the industry. These skills are required for the telecommunications infrastructure network design.

Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licencing, legislative or certification requirements.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 16**

**8 core units** plus

**8 electives** units



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The elective units consist of:

- 1 elective unit from Group A Workplace elective units, plus
- 7 elective units from Group B General elective units with no more than 2 at AQF Level 3 or below.

A maximum of 2 units from the Group B general elective units may be substituted with units from any endorsed Training Package or accredited course at Australian Qualifications Framework (AQF) Level 4 or 5. One of the 2 Group B general electives units may be substituted with a Group A workplace elective unit where required by a specific job role.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the AQF alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

**Core Units**

ICTICT408 Create technical documentation

ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry

ICTTEN426 Design network projects

ICTTEN427 Conduct site surveys to identify carrier installation requirements

ICTTEN428 Prepare design drawings and specifications for telecommunications installations

ICTTEN429 Estimate and quote for carrier telecommunications equipment installations

ICTWHS204 Follow work health and safety and environmental policies and procedures

ICTWOR201 Work effectively in telecommunications technology

**Elective Units**

**Group A - Workplace elective units**

BSBLDR402 Lead effective workplace relationships

BSBMGT401 Show leadership in the workplace

BSBSMB407 Manage a small team

ICTICT401 Determine and confirm client business requirements



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ICTSMB401 Set up and operate a contractor business

ICTSMB402 Operate a contractor business with employees

## Group B – General elective units

### Network planning

ICTNPL401 Apply business acumen to network planning

ICTNPL402 Plan the deployment of access network architectures

ICTNPL403 Evaluate the capability of access networks

ICTNPL404 Evaluate the planning requirements for provisioning a telecommunications building facility

ICTNPL405 Develop provisioning of telecommunications building works project

ICTNPL406 Evaluate core network architectures

ICTNPL407 Plan the deployment of core network

ICTNPL408 Produce planning specifications for end-to-end service delivery

ICTNPL410 Plan the telecommunications access network for an estate

ICTNPL411 Apply compliance requirements to telecommunications work

### Design

BSBDES401 Generate design solutions

BSBDES402 Interpret and respond to a design brief

BSBDES403 Develop and extend design skills and practice

BSBDES501 Implement design solutions

BSBDES502 Establish, negotiate and refine a design brief

### Radio frequency networks

ICTRFN401 Conduct radio frequency measurements

ICTRFN402 Select an antenna system for radio communications

ICTRFN404 Undertake radio communications signals monitoring

ICTRFN406 Maintain hybrid fibre coaxial broadband cable network

ICTRFN502 Test and measure cellular phone and network equipment performance

### Optical networks

ICTOPN401 Install and test a dense wavelength division multiplexing system



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ICTOPN403 Prepare activity plans and specifications for a fibre to the x installation

**Project management**

ICTPMG402 Schedule installation of customer premises equipment

ICTPMG403 Manage the delivery of network infrastructure

ICTPMG503 Prepare a project brief

**Sustainability**

BSBSUS401 Implement and monitor environmentally sustainable work practices

**Workplace effectiveness**

ICTWOR401 Undertake a civil site survey

**Telecommunications network engineering**

ICTTEN401 Identify requirements for customer telecommunications equipment

ICTTEN402 Estimate and quote for customer telecommunications equipment installation

ICTTEN403 Assign a transmission path

ICTTEN406 Effect changes to existing customer premises equipment systems and equipment

ICTTEN407 Cut over customer premises equipment major upgrades

ICTTEN416 Install, configure and test an internet protocol network

ICTTEN417 Install, configure and test a router

ICTTEN420 Design, install and configure an internetwork

ICTTEN421 Apply advanced routing protocols to network design

ICTTEN425 Design, install and configure a customer smart technology network

ICTTEN430 Design infrastructure for telecommunications network installations

ICTTEN431 Design dense wavelength digital multiplexing installations

**ICT use**

ICTICT405 Develop detailed technical design

**General**

CPCCOHS1001A Work safely in the construction industry

ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation*



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*Note the following prerequisite unit requirements:

| Unit in this qualification | Prerequisite unit |
|---|---|
| ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation | ICTWHS204 Follow work health and safety and environmental policy and procedures<br>ICTBWN305 Use optical and radio frequency measuring instruments |

# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT41115 Certificate IV in Telecommunications Network Design | ICT40713 Certificate IV in Telecommunications Network Design<br><br>ICT40510 Certificate IV in Telecommunications Network Planning | Updated to meet Standards for Training Packages.<br><br>Changed core units. | No equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT41215 Certificate IV in Telecommunications Engineering Technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification reflects the role of an advanced technician (technical officer), team leader or supervisor with a wide range of telecommunications skills who can install and maintain:

- enterprise networks in emerging and converging technologies
- optical and wireless equipment for high speed broadband network infrastructure
- internet protocol (IP) based network telecommunications equipment
- IP based networks in home networks and small and medium enterprises
- telecommunications, data cabling and cabling products in line with the specifications of the access network owner
- telecommunications access network cabling and infrastructure, systems and customer equipment

The qualifications also enables technicians to assess installation requirements of converging voice, video and data IP networks, plan and perform installations and test installed equipment and fault find. It may also involve a degree of autonomy and may include limited supervision of others.

The following specialisations can be achieved through selection of specific units of competency:

- Network Engineering
- Optical Networks
- Radio Communications.

Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.


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# Entry Requirements

Nil

# Packaging Rules

**Total number of units = 16**

**8 core units** plus

**8 electives** units

The elective units consist of:

- 2 elective units selected from Group A
- up to 6 elective units selected from Groups B, C and D, with no more than 3 at AQF Level 3 or below
- up to 2 units selected from any currently endorsed Training Package or accredited course at AQF Level 4 or above.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the Australian Qualifications Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

Refer to the *Specialisations* information below, and to the Companion Volume Implementation Guide, for advice about choosing electives to support specialisations in particular sectors of the information and communications industry.

### Core Units

ICTICT408 Create technical documentation

ICTPMG403 Manage the delivery of network infrastructure

ICTTEN201 Use electrical skills in telecommunications work

ICTTEN202 Use hand and power tools

ICTTEN410 Locate, diagnose and rectify faults

ICTTEN414 Repair telecommunication system faults

ICTWHS204 Follow work health and safety and environmental policy and procedures



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ICTWOR201 Work effectively in telecommunications technology

**Elective Units**

**Group A**

BSBCUS402 Address customer needs

BSBSMB401 Establish legal and risk management requirements of small business

BSBSMB405 Monitor and manage small business operations

BSBSMB407 Manage a small team

ICTCBL403 Supervise cabling project

ICTICT401 Determine and confirm client business requirements

ICTSMB401 Set up and operate a contractor business

ICTSMB402 Operate a contractor business with employees

ICTTEN402 Estimate and quote for customer telecommunications equipment installation

**Group B General**

CPCCOHS1001A Work safely in the construction industry

HLTAID003 Provide first aid

ICTCBL402 Schedule and supply cabling installation

ICTCBL405 Remotely locate and identify cable network faults

ICTNWK410 Install network hardware to a network

ICTWHS203 Work safely near power infrastructure

ICTOPN401 Install and test a dense wavelength division multiplexing system

ICTOPN402 Use advanced optical test equipment

ICTOPN403 Prepare activity plans and specifications for a fibre to the x installation

ICTPMG402 Schedule installation of customer premises equipment

ICTRFN406 Maintain hybrid fibre coaxial broadband cable network

ICTSUS401 Install and test renewable energy system for ICT networks

ICTSUS402 Install and test power saving hardware

ICTSUS404 Install thin client applications for power over ethernet

ICTTEN401 Identify requirements for customer telecommunications equipment

ICTTEN403 Assign a transmission path

ICTTEN404 Install and configure a wireless mesh network

ICTTEN405 Install configuration programs on PC based customer equipment

ICTTEN406 Effect changes to existing customer premises equipment systems and equipment



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ICTTEN407 Cut over customer premises equipment major upgrades

ICTTEN408 Complete equipment and software upgrades

ICTTEN409 Commission an electronic system

ICTTEN412 Undertake routine maintenance of the telecommunications network

ICTTEN413 Undertake remote diagnosis and repair of network faults

ICTTEN415 Install and configure internet protocol TV in a home network

ICTTEN416 Install, configure and test an internet protocol network

ICTTEN417 Install, configure and test a router

ICTTEN419 Implement and troubleshoot enterprise routers and switches

ICTTEN424 Install and configure internet protocol TV in a service provider network

ICTTEN425 Design, install and configure a customer smart technology network

**Group C Network engineering**

ICTCBL401 Prepare design drawings and specification for a cable installation

ICTCBL404 Test cable bearers

ICTDRE401 Integrate customer digital reception equipment

ICTDRE402 Integrate data delivery modes

ICTICT405 Develop detailed technical design

ICTNWK406 Install, configure and test network security

ICTNWK411 Install software to networked computers

ICTNWK416 Build security into virtual private networks

ICTNWK417 Build an enterprise wireless network

ICTSUS403 Install and test power management software

ICTTEN301 Provide infrastructure for telecommunications network equipment

ICTTEN302 Install telecommunications network equipment

ICTTEN308 Maintain an electronic system

ICTTEN405 Install configuration programs on PC based customer equipment

ICTTEN411 Monitor, analyse and action telecommunications network alarms

ICTTEN420 Design, install and configure an internetwork

ICTTEN421 Apply advanced routing protocols to network design

ICTTEN422 Configure and troubleshoot advanced network switching

ICTTEN423 Install and maintain a wide area network

ICTTEN514 Install, configure and test a server



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### Group D Radio communications

ICTCMP501 Undertake radio communications site audit

ICTRFN301 Install a radio communications antenna and feedline

ICTRFN303 Install WiMAX customer premises equipment broadband wireless access equipment

ICTRFN304 Construct and test a radio communications device

ICTRFN305 Operate and maintain radio communications technical instruments and field equipment

ICTRFN401 Conduct radio frequency measurements

ICTRFN402 Select antenna system for radio communications

ICTRFN403 Test and repair cellular network equipment

ICTRFN404 Undertake radio communications signals monitoring

ICTRFN405 Install radio communications base station equipment

ICTRFN502 Test and measure cellular phone and network equipment performance

ICTTEN418 Install and test a radio frequency identification system

ICTWOR401 Undertake a civil site survey

ICTWOR402 Schedule equipment maintenance

### Specialisations

The use of specialist streams is appropriate for this qualification in accordance with the AQF, Standards for Training Packages and the packaging rules. Where a specialist stream is achieved, testamurs must show the appropriate specialisation in brackets. Refer to the Companion Volume Implementation Guide for further advice about specialisations.

Minimum elective units required for the specific specialisations are described below.

### Network Engineering

Select 6 electives from Groups B and C only.

### Optical Networks

Select the following 3 electives:

- ICTOPN401 Install and test a dense wavelength division multiplexing system
- ICTOPN402 Use advanced optical test equipment
- ICTOPN403 Prepare activity plans and specifications for a fibre to the x installation.

The remaining 3 units must be selected from Groups B and C only.



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**Radio Communications**

Select the following 4 electives:

- ICTRFN301 Install a radio communications antenna and feedline
- ICTRFN304 Construct and test a radio communications device
- ICTRFN401 Conduct radio frequency measurements
- ICTRFN402 Select antenna system for radio communications.

The remaining 2 units must be selected from Groups B and D only.

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT41215 Certificate IV in Telecommunications Engineering Technology | ICT40110 Certificate IV in Optical Networks<br><br>ICT40210 Certificate IV in Telecommunications Network Engineering<br><br>ICT40313 Certificate IV in Telecommunications Radio Communications<br><br>ICT40410 Certificate IV in Radio Frequency Networks<br><br>ICT40613 Certificate IV in Telecommunications Networks Technology | Updated to meet Standards for Training Packages.<br><br>Changed packaging rules.<br><br>Changed core units. | No equivalent qualification |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT50115 Diploma of Information Technology

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to administer and manage information and communications technology (ICT) support in small-to-medium enterprises (SMEs) using a wide range of general ICT technologies.

Persons working at this level provide a broader rather than specialised ICT support function, applying a wide range of higher level technical skills in ICT areas such as networking, IT support, database development, programming and web development.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 20**

**4 core units** *plus*

**16 elective units**



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The elective units consist of:

- up to 16 units from the specialist elective groups below, with a maximum of 5 units from any one group:
  Group A Networking
  Group B Programming
  Group C IT support
  Group D Web design and development
  Group E Digital games
  Group F Digital media technologies
  Group G Project management

- up to 5 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBSUS501 Develop workplace policy and procedures for sustainability

BSBWHS501 Ensure a safe workplace

ICTICT509 Gather data to identify business requirements

ICTICT511 Match ICT needs with the strategic direction of the enterprise

**Specialist elective units**

**Group A Networking**

ICTNWK501 Plan, implement and test enterprise communication solutions

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK504 Design and implement an integrated server solution

ICTNWK505 Design, build and test a network server

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTNWK508 Install, operate and troubleshoot medium enterprise switches

ICTNWK509 Design and implement a security perimeter for ICT networks


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ICTNWK510 Develop, implement and evaluate system and application security

ICTNWK511 Manage network security

ICTNWK513 Manage system security

ICTNWK514 Model preferred system solutions

ICTNWK515 Develop configuration management protocols

ICTNWK516 Determine best-fit topology for a local network

ICTNWK517 Determine best-fit topology for a wide area network

ICTNWK518 Design an enterprise wireless local area network

ICTNWK519 Design an ICT security framework

ICTNWK520 Design ICT system security controls

ICTNWK521 Install, configure and test a payment gateway

ICTNWK522 Build decks using wireless markup language

ICTNWK524 Install and configure network access storage devices

ICTNWK525 Configure an enterprise virtual computing environment

ICTNWK527 Manage an enterprise virtual computing environment

ICTNWK529 Install and manage complex ICT networks

ICTNWK531 Configure an internet gateway

ICTNWK532 Identify and resolve network problems

ICTNWK533 Configure and manage advanced virtual computing environments

ICTNWK534 Monitor and troubleshoot virtual computing environments

ICTNWK535 Install an enterprise virtual computing environment

ICTNWK614 Manage ICT security

ICTNWK615 Design and configure desktop virtualisation

**Group B Programming**

ICTPRG501 Apply advanced object-oriented language skills

ICTPRG502 Manage a project using software management tools

ICTPRG503 Debug and monitor applications

ICTPRG504 Deploy an application to a production environment

ICTPRG505 Build advanced user interface

ICTPRG506 Design application architecture

ICTPRG507 Implement security for applications

ICTPRG508 Create mashups

ICTPRG509 Build using rapid application development



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ICTPRG510 Maintain custom software

ICTPRG511 Monitor and support data conversion to new ICT system

ICTPRG512 Prepare for the build phase of an ICT system

ICTPRG513 Coordinate the build phase of an ICT system

ICTPRG514 Prepare for software development using rapid application development

ICTPRG515 Review developed software

ICTPRG516 Develop integration blueprint for ICT systems

ICTPRG517 Install, test and evaluate pilot version of ICT system

ICTPRG518 Monitor the system pilot

ICTPRG523 Apply advanced programming skills in another language

ICTPRG524 Develop high-level object-oriented class specifications

ICTPRG525 Build Java applets

ICTPRG526 Maintain functionality of legacy code programs

ICTPRG527 Apply intermediate object-oriented language skills

ICTPRG528 Perform ICT data conversion

ICTPRG601 Develop advanced mobile multi-touch applications

ICTSAD501 Model data objects

ICTSAD502 Model data processes

ICTSAD503 Minimise risk of new technologies to business solutions

**Group C IT Support**

ICTICT501 Research and review hardware technology options for organisations

ICTICT502 Develop detailed component specifications from project specifications

ICTICT503 Validate quality and completeness of system design specifications

ICTICT504 Confirm transition strategy for a new system

ICTICT506 Implement process re-engineering strategies

ICTICT507 Select new technology models for business

ICTICT510 Determine appropriate ICT strategies and solutions

ICTICT512 Plan process re-engineering strategies for business

ICTICT514 Identify and manage the implementation of current industry-specific technologies

ICTICT515 Verify client business requirements

ICTSAD506 Produce a feasibility report

ICTSAS501 Develop, implement and evaluate an incident response plan

ICTSAS502 Establish and maintain client user liaison



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ICTSAS503 Perform systems tests

ICTSAS504 Develop and conduct client acceptance test

ICTSAS505 Review and update disaster recovery and contingency plans

ICTSAS506 Update ICT system operational procedures

ICTSAS507 Implement and evaluate systems for regulatory and standards compliance

ICTSAS509 Provide client ICT support services

ICTSAS510 Review and develop ICT maintenance strategy

ICTSAS511 Prioritise ICT change requests

ICTSAS512 Review and manage delivery of maintenance services

ICTSAS513 Develop detailed test plans

ICTSAS515 Manage the testing process

ICTSAS517 Use network tools

ICTSAS518 Install and upgrade operating systems

**Group D Web design and development**

ICTWEB411 Produce basic client-side script for dynamic web pages

ICTWEB429 Create a markup language document to specification

ICTWEB501 Build a dynamic website

ICTWEB502 Create dynamic web pages

ICTWEB503 Create web-based programs

ICTWEB504 Build a document using eXtensible markup language

ICTWEB505 Develop complex web page layouts

ICTWEB506 Develop complex cascading style sheets

ICTWEB507 Customise a complex ICT content management system

ICTWEB508 Develop website information architecture

ICTWEB509 Use site server tools for transaction management

ICTWEB510 Analyse information and assign meta tags

ICTWEB511 Implement quality assurance process for websites

ICTWEB512 Administer business websites and servers

ICTWEB515 Implement and use web services

ICTWEB516 Research and apply emerging web technology trends

**Group E Digital games**

ICTGAM501 Create design concepts for digital games and 3-D media



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ICTGAM503 Create a complex 3-D interactive computer game
ICTGAM504 Manage interactive media production
ICTGAM506 Create complex code for mobile game devices
ICTGAM507 Develop intermediate 3-D software for games and interactive media
ICTGAM508 Develop complex 3-D software for games and interactive media
ICTGAM509 Design interactive 3-D applications for scientific and mathematical modelling
ICTGAM510 Prepare games for different platforms and delivery modes
ICTGAM511 Manage testing of games and interactive media
ICTGAM512 Create and implement designs for a 3-D games environment
ICTGAM514 Design and create models for a 3-D and digital effects environment
ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects
ICTGAM516 Animate a 3-D character for digital games
ICTGAM517 Produce a digital animation sequence
ICTGAM518 Animate physical attributes of models and elements
ICTGAM519 Manage technical art and rigging in 3-D animation
ICTGAM520 Create and combine 3-D digital games and components
ICTGAM521 Create interactive 3-D environments for digital games
ICTGAM522 Complete digital editing for the 3-D and digital effects environment
ICTGAM523 Collaborate in the design of 3-D game levels and environments
ICTGAM524 Integrate multiple data sources into interactive 3-D environments
ICTGAM525 Apply digital texturing for the 3-D environment in digital games
ICTGAM526 Create complex 3-D characters for games
ICTGAM527 Integrate database with online game
ICTGAM529 Analyse business opportunities in the digital games environment

**Group F Digital media technologies**

BSBCRT501 Originate and develop concepts
CUADIG502 Design digital applications
CUADIG503 Design e-learning resources
CUADIG507 Design digital simulations
CUAPHI504 Employ specialised imaging technologies
CUAPOS201 Perform basic vision and sound editing
CUAPOS401 Edit screen content for fast turnaround
CUASOU307 Record and mix a basic music demo


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CUASOU504 Produce sound recordings

ICTDMT501 Incorporate and edit digital video

ICTICT406 Build a graphical user interface

ICTICT419 Work effectively in the digital media industry

**Group G Project management**

ICTPMG501 Manage ICT projects

# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT50115 Diploma of Information Technology (Release 2) | ICT50115 Diploma of Information Technology (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT50215 Diploma of Digital and Interactive Games

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in a variety of skill areas within the digital and interactive games industry. It provides an opportunity to develop the design, graphic/digital media and programming skills required in the development of digital games briefs, either as a small independent specialist or as part of a larger team. The qualification also provides opportunities to work in new and emerging games genres, such as online game development, mobile device gaming, interactive internet and TV game development.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 16**

**5 core units** *plus*

**11 elective units**

The elective units consist of:



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- 5 from one of the following specialist groups:
  Group A Programming
  Group B Art
  Group C Digital media.

Of the remaining elective units:

- up to 6 may be from the specialist elective groups below or from Group D general elective units below
- up to 3 may be from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBWHS403 Contribute to implementing and maintaining WHS consultation and participation processes

ICTGAM501 Create design concepts for digital games and 3-D media

ICTGAM503 Create a complex 3-D interactive computer game

ICTGAM523 Collaborate in the design of 3-D game levels and environments

ICTICT419 Work effectively in the digital media industry

**Elective units**

**Specialist elective units**

**Group A Programming**

ICTGAM419 Build a database to support a computer game

ICTGAM506 Create complex code for mobile game devices

ICTGAM507 Develop intermediate 3-D software for games and interactive media

ICTGAM508 Develop complex 3-D software for games and interactive media

ICTGAM509 Design interactive 3-D applications for scientific and mathematical modelling

ICTGAM510 Prepare games for different platforms and delivery modes

ICTGAM511 Manage testing of games and interactive media

ICTGAM527 Integrate database with online game

ICTPRG425 Use structured query language


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ICTPRG501 Apply advanced object-oriented language skills

ICTPRG515 Review developed software

ICTPRG523 Apply advanced programming skills in another language

ICTWEB508 Develop website information architecture

**Group B Art**

ICTGAM512 Create and implement designs for a 3-D games environment

ICTGAM514 Design and create models for a 3-D and digital effects environment

ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects

ICTGAM516 Animate a 3-D character for digital games

ICTGAM517 Produce a digital animation sequence

ICTGAM518 Animate physical attributes of models and elements

ICTGAM519 Manage technical art and rigging in 3-D animation

ICTGAM520 Create and combine 3-D digital games and components

ICTGAM526 Create complex 3-D characters for games

**Group C Digital media**

CUADIG502 Design digital applications

CUADIG503 Design e-learning resources

CUADIG507 Design digital simulations

CUASOU407 Edit sound

ICTGAM521 Create interactive 3-D environments for digital games

ICTGAM522 Complete digital editing for the 3-D and digital effects environment

ICTGAM524 Integrate multiple data sources into interactive 3-D environments

ICTGAM525 Apply digital texturing for the 3-D environment in digital games

**General elective units**

**Group D**

BSBCRT501 Originate and develop concepts

BSBSUS501 Develop workplace policy and procedures for sustainability

ICTGAM504 Manage interactive media production

ICTGAM528 Create games for mobile devices

ICTGAM529 Analyse business opportunities in the digital games environment

ICTGAM530 Develop and implement physics in a 3-D digital game



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ICTGAM531 Complete compositing to create elements for the 3-D and digital effects environment

ICTICT408 Create technical documentation

ICTICT511 Match ICT needs with the strategic direction of the enterprise

ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTPMG501 Manage ICT projects

ICTWEB411 Produce basic client-side script for dynamic web pages

ICTWEB429 Create a markup language document to specification

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT50215 Diploma of Digital and Interactive Games (Release 2) | ICT50215 Diploma of Digital and Interactive Games (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT50315 Diploma of Information Technology Systems Administration

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in administering a variety of networked computer systems. The qualification has a strong information technology base of core units with the potential for inclusion of a range of broader industry-specific units in the areas of virtualisation, sustainability and project management to suit particular needs.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 19**

**10 core units** *plus*

**9 elective units**

The elective units consist of:



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- up to 9 elective units from the elective units listed below
- up to 4 from elsewhere in ICT Information and Communications Technology Training Package
- or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBSUS501 Develop workplace policy and procedures for sustainability

ICTICT418 Contribute to copyright, ethics and privacy in an IT environment

ICTICT509 Gather data to identify business requirements

ICTNWK513 Manage system security

ICTSAS406 Implement and hand over system components

ICTSAS502 Establish and maintain client user liaison

ICTSAS505 Review and update disaster recovery and contingency plans

ICTSAS512 Review and manage delivery of maintenance services

ICTSAS515 Manage the testing process

ICTTEN516 Produce technical solutions from business specifications

**Elective units**

ICTICT501 Research and review hardware technology options for organisations

ICTICT511 Match ICT needs with the strategic direction of the enterprise

ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTICT515 Verify client business requirements

ICTNWK501 Plan, implement and test enterprise communication solutions

ICTNWK502 Implement secure encryption technologies

ICTNWK504 Design and implement an integrated server solution

ICTNWK505 Design, build and test a network server

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK525 Configure an enterprise virtual computing environment

ICTNWK527 Manage an enterprise virtual computing environment



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ICTNWK529 Install and manage complex ICT networks

ICTNWK531 Configure an internet gateway

ICTNWK533 Configure and manage advanced virtual computing environments

ICTNWK534 Monitor and troubleshoot virtual computing environments

ICTNWK535 Install an enterprise virtual computing environment

ICTNWK615 Design and configure desktop virtualisation

ICTPMG501 Manage ICT projects

ICTSAD506 Produce a feasibility report

ICTSAS503 Perform systems tests

ICTSAS513 Develop detailed test plans

ICTSAS517 Use network tools

ICTSAS518 Install and upgrade operating systems

ICTSUS501 Implement server virtualisation for a sustainable ICT system

ICTSUS601 Integrate sustainability in ICT planning and design projects

ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects

ICTTEN611 Produce an ICT network architecture design

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT50315 Diploma of Information Technology Systems Administration (Release 2) | ICT50315 Diploma of Information Technology Systems Administration (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT50415 Diploma of Information Technology Networking

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to manage, as an independent ICT specialist or as part of a team, the installation of a range of networks, including internetworking, security and e-business integration.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 16**

**5 core units** *plus*

**11 elective units**

The elective units consist of:

- up to 11 from the elective units listed below


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- up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT511 Match IT needs with the strategic direction of the enterprise

ICTNWK529 Install and manage complex ICT networks

ICTSUS501 Implement server virtualisation for a sustainable ICT system

ICTTEN611 Produce an ICT network architecture design

**Elective units**

BSBSUS501 Develop workplace policy and procedures for sustainability

ICTICT501 Research and review hardware technology options for organisations

ICTICT509 Gather data to identify business requirements

ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTICT603 Manage the use of appropriate development methodologies

ICTNWK501 Plan, implement and test enterprise communication solutions

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK504 Design and implement an integrated server solution

ICTNWK505 Design, build and test a network server

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTNWK508 Install, operate and troubleshoot medium enterprise switches

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK510 Develop, implement and evaluate system and application security

ICTNWK511 Manage network security

ICTNWK513 Manage system security

ICTNWK524 Install and configure network access storage devices

ICTNWK525 Configure an enterprise virtual computing environment



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ICTNWK527 Manage an enterprise virtual computing environment

ICTNWK531 Configure an internet gateway

ICTNWK533 Configure and manage advanced virtual computing environments

ICTNWK534 Monitor and troubleshoot virtual computing environments

ICTNWK535 Install an enterprise virtual computing environment

ICTNWK615 Design and configure desktop virtualisation

ICTOPN502 Perform acceptance and commissioning tests on optical network

ICTOPN503 Plan for an optical system upgrade and cut over

ICTOPN505 Test the performance of specialised optical devices

ICTOPN506 Analyse and integrate specialised optical devices in the network

ICTPMG501 Manage ICT projects

ICTSAD506 Produce a feasibility report

ICTSAS406 Implement and hand over system components

ICTSAS501 Develop, implement and evaluate an incident response plan

ICTSAS502 Establish and maintain client user liaison

ICTSAS503 Perform systems test

ICTSAS505 Review and update disaster recovery and contingency plans

ICTSAS512 Review and manage delivery of maintenance services

ICTSAS515 Manage the testing process

ICTSUS601 Integrate sustainability in ICT planning and design projects

ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects

ICTTEN422 Configure and troubleshoot advanced network switching

ICTTEN512 Design and implement an enterprise voice over internet protocol and a unified communications network

ICTTEN514 Install, configure and test a server

ICTTEN515 Dimension and design a radio frequency identification system

ICTTEN516 Produce technical solutions from business specifications

ICTTEN517 Plan a wireless mesh network

ICTTEN610 Design and configure an IP-MPLS network with virtual private network tunnelling



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# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT50415 Diploma of Information Technology Networking (Release 2) | ICT50415 Diploma of Information Technology Networking (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT50515 Diploma of Database Design and Development

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICA Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides skills and knowledge for an individual to be effective in the design and development of ICT database systems. The qualification builds on a base core of design and development competencies with elective choices covering business needs analysis, quality assurance and project management.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 20**

**9 core units** *plus*

**11 elective units**

The elective units consist of:

- up to 11 from the elective units listed below



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- up to 4 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

ICTDBS502 Design a database

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT502 Develop detailed component specifications from project specifications

ICTNWK514 Model preferred system solutions

ICTPRG425 Use structured query language

ICTPRG509 Build using rapid application development

ICTSAD501 Model data objects

ICTSAD502 Model data processes

ICTSUS601 Integrate sustainability in ICT planning and design projects

**Elective units**

ICTDBS504 Integrate database with a website

ICTICT423 Select cloud storage strategies

ICTICT509 Gather data to identify business requirements

ICTICT511 Match ICT needs with the strategic direction of the enterprise

ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTPMG501 Manage ICT projects

ICTPMG606 Manage ICT project quality

ICTPRG501 Apply advanced object-oriented language skills

ICTPRG503 Debug and monitor applications

ICTPRG504 Deploy an application to a production environment

ICTPRG505 Build advanced user interface

ICTPRG507 Implement security for applications

ICTPRG511 Monitor and support data conversion to new ICT system

ICTPRG514 Prepare for software development using rapid application development

ICTPRG515 Review developed software

ICTPRG523 Apply advanced programming skills in another language



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ICTSAD506 Produce a feasibility report

ICTSAS502 Establish and maintain client user liaison

ICTSAS505 Review and update disaster recovery and contingency plans

ICTWEB502 Create dynamic web pages

ICTTEN516 Produce technical solutions from business specifications

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT50515 Diploma of Database Design and Development (Release 2) | ICT50515 Diploma of Database Design and Development (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT50615 Diploma of Website Development

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to design, build and manage websites as an independent web developer or as part of a team.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 20**

**8 core units** *plus*

**12 elective units**

The elective units consist of:

- up to 12 from the elective units listed below
- up to 4 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Diploma or Advanced Diploma level.


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The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBWHS501 Ensure a safe workplace

ICTDBS504 Integrate database with a website

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT515 Verify client business requirements

ICTWEB501 Build a dynamic website

ICTWEB502 Create dynamic web pages

ICTWEB503 Create web-based programs

ICTWEB516 Research and apply emerging web technology trends

**Elective units**

BSBEBU501 Investigate and design e-business solutions

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTDBS412 Build a database

ICTDBS502 Design a database

ICTICT406 Build a graphical user interface

ICTICT503 Validate quality and completeness of system design specifications

ICTICT509 Gather data to identify business requirements

ICTICT511 Match ICT needs with the strategic direction of the enterprise

ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTNWK406 Install, configure and test network security

ICTNWK514 Model preferred system solutions

ICTPMG501 Manage ICT projects

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG413 Use a library or pre-existing components

ICTPRG415 Apply skills in object-oriented design

ICTPRG418 Apply intermediate programming skills in another language

ICTPRG425 Use structured query language

ICTPRG501 Apply advanced object-oriented language skills

ICTPRG503 Debug and monitor applications



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ICTPRG504 Deploy an application to a production environment

ICTPRG505 Build advanced user interface

ICTPRG506 Design application architecture

ICTPRG507 Implement security for applications

ICTPRG509 Build using rapid application development

ICTPRG512 Prepare for the build phase of an ICT system

ICTPRG513 Coordinate the build phase of an ICT system

ICTPRG514 Prepare for software development using rapid application development

ICTPRG515 Review developed software

ICTPRG523 Apply advanced programming skills in another language

ICTPRG527 Apply intermediate object-oriented language skills

ICTPRG601 Develop advanced mobile multi-touch applications

ICTSAD501 Model data objects

ICTSAD502 Model data processes

ICTSAD506 Produce a feasibility report

ICTSAS503 Perform systems tests

ICTSAS504 Develop and conduct client acceptance test

ICTSAS505 Review and update disaster recovery and contingency plans

ICTTEN516 Produce technical solutions from business specifications

ICTWEB504 Build a document using eXtensible markup language

ICTWEB505 Develop complex web page layouts

ICTWEB506 Develop complex cascading style sheets

ICTWEB508 Develop website information architecture

ICTWEB509 Use site server tools for transaction management

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT50615 Diploma of Website Development (Release 2) | ICT50615 Diploma of Website Development (Release 1) | Updated unit codes. | Equivalent qualification |



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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT50715 Diploma of Software Development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This qualification first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in programming and software development.

A person with this qualification would create new software products to meet an initial project brief or customise existing software products to meet customer needs.

### Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 16**

**10 core units** plus

**6 elective units**

The elective units consist of:

- up to 6 from the elective units listed below
- up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Diploma or Advanced Diploma level.


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The elective units chosen must be relevant to the work outcome and meet local industry needs.

### Core units

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment
ICTPRG418 Apply intermediate programming skills in another language
ICTPRG501 Apply advanced object-oriented language skills
ICTPRG502 Manage a project using software management tools
ICTPRG503 Debug and monitor applications
ICTPRG504 Deploy an application to a production environment
ICTPRG520 Validate an application design against specifications
ICTPRG523 Apply advanced programming skills in another language
ICTPRG527 Apply intermediate object-oriented language skills
ICTPRG529 Apply testing techniques for software development

### Elective units

ICTICT403 Apply software development methodologies
ICTICT503 Validate quality and completeness of system design specifications
ICTICT509 Gather data to identify business requirements
ICTICT511 Match ICT needs with the strategic direction of the enterprise
ICTICT514 Identify and manage the implementation of current industry-specific technologies
ICTNWK514 Model preferred system solutions
ICTPMG501 Manage ICT projects
ICTPRG505 Build advanced user interface
ICTPRG506 Design application architecture
ICTPRG507 Implement security for applications
ICTPRG508 Create mashups
ICTPRG509 Build using rapid application development
ICTPRG510 Maintain custom software
ICTPRG512 Prepare for the build phase of an ICT system
ICTPRG513 Coordinate the build phase of an ICT system


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ICTPRG514 Prepare for software development using rapid application development

ICTPRG515 Review developed software

ICTPRG601 Develop advanced mobile multi-touch applications

ICTPRG604 Create cloud computing services

ICTSAD501 Model data objects

ICTSAD502 Model data processes

ICTSAD506 Produce a feasibility report

ICTSAS502 Establish and maintain client user liaison

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT50715 Diploma of Software Development | ICA50711 Diploma of Software Development | Updated to meet Standards for Training Packages | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT50815 Diploma of Systems Analysis and Design

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to determine client business requirements and to support a project team in the analysis and redesign of systems to ensure they meet client needs.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 21**

**9 core units** *plus*

**12 elective units**

The elective units consist of:

- up to 12 from the elective units listed below


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- up to 4 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

ICTDBS502 Design a database

ICTICT401 Determine and confirm client business requirements

ICTICT403 Apply software development methodologies

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT502 Develop detailed component specifications from project specifications

ICTICT509 Gather data to identify business requirements

ICTICT511 Match ICT needs with the strategic direction of the enterprise

ICTSUS601 Integrate sustainability in ICT planning and design projects

ICTTEN516 Produce technical solutions from business specifications

**Elective units**

ICTICT510 Determine appropriate ICT strategies and solutions

ICTICT512 Plan process re-engineering strategies for business

ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTNWK514 Model preferred system solutions

ICTPMG501 Manage ICT projects

ICTPRG418 Apply intermediate programming skills in another language

ICTPRG509 Build using rapid application development

ICTPRG514 Prepare for software development using rapid application development

ICTPRG515 Review developed software

ICTPRG518 Monitor the system pilot

ICTPRG524 Develop high-level object-oriented class specifications

ICTPRG527 Apply intermediate object-oriented language skills

ICTSAD501 Model data objects

ICTSAD502 Model data processes

ICTSAS422 Scope implementation requirements

ICTSAS502 Establish and maintain client user liaison



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ICTSAS505 Review and update disaster recovery and contingency plans

ICTSAS506 Update ICT system operational procedures

ICTSAS507 Implement and evaluate systems for regulatory and standards compliance

ICTSAS513 Develop detailed test plans

ICTTEN501 Provide consultancy and technical support in the customer premises equipment sector

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT50815 Diploma of Systems Analysis and Design (Release 2) | ICT50815 Diploma of Systems Analysis and Design (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT50915 Diploma of Digital Media Technologies

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in designing, developing and refining digital media technologies as an independent information and communications technology (ICT) specialist or as part of a team. It provides the opportunity to work in new and emerging digital media technology areas, such as online, and interactive design and development, and with tools and equipment, such as software, Web 2 tools, technologies and mobile devices.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 18**

**7 core units** *plus*

**11 elective units**

The elective units consist of:

- up to 11 from the elective units listed below


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- up to 3 from elsewhere in ICT Information and Communications Technology Training Package
- or any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBCRT501 Originate and develop concepts

BSBWHS501 Ensure a safe workplace

ICTGAM504 Manage interactive media production

ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

ICTICT419 Work effectively in the digital media industry

ICTICT515 Verify client business requirements

ICTPMG501 Manage ICT projects

**Elective units**

CUADIG502 Design digital applications

CUADIG503 Design e-learning resources

CUADIG504 Design games

CUADIG507 Design digital simulations

CUAPOS201 Perform basic vision and sound editing

CUAPOS401 Edit screen content for fast turnaround

CUASOU307 Record and mix a basic music demo

CUASOU504 Produce sound recordings

CUAPHI504 Employ specialised imaging technologies

ICTDBS504 Integrate database with a website

ICTDMT501 Incorporate and edit digital video

ICTGAM507 Develop intermediate 3-D software for games and interactive media

ICTGAM511 Manage testing of games and interactive media

ICTGAM512 Create and implement designs for a 3-D games environment

ICTGAM514 Design and create models for a 3-D and digital effects environment

ICTICT406 Build a graphical user interface

ICTICT511 Match ICT needs with the strategic direction of the enterprise



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ICTICT514 Identify and manage the implementation of current industry specific technologies

ICTPRG409 Develop mobile applications

ICTPRG413 Use a library or pre-existing components

ICTPRG418 Apply intermediate programming skills in another language

ICTPRG425 Use structured query language

ICTPRG527 Apply intermediate object-oriented language skills

ICTSAD504 Develop and conduct client acceptance test

ICTWEB429 Create a markup language document to specification

ICTWEB501 Build a dynamic website

ICTWEB516 Research and apply emerging web technology trends

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT50915 Diploma of Digital Media Technologies (Release 2) | ICT50915 Diploma of Digital Media Technologies (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT51015 Diploma of Telecommunications Engineering

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification reflects the role of a technical specialist, with high level skills and knowledge in telecommunications and information technology (IT) networks using internet protocol (IP) systems.

An individual in this role can install, test and commission voice and data communications networks in medium to large enterprises using next generation networks technologies. They canprovide specialist technical support in monitoring and administering the installation and upgrade of large telecommunications and IT networks including local area networks (LAN) and wide area networks (WAN), IP based protocol systems, voice over internet protocol (VoIP) and unified communications networks, secured networks, cellular mobile networks, microwave systems, wireless and wired line networks, databases, routers, switches and servers.

The following specialisations can be achieved through selection of specific units of competency:

- Management
- Network Engineering
- Optical Networks
- Radio Communications.

*Licensing/Regulatory Information*

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Entry Requirements

Entry to this qualification is limited to those individuals who:


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- Have completed a Certificate IV or Diploma from the ICT Information and Communications Technology Training Package.

or

- Have completed a Certificate III in Telecommunications with at least one year full time equivalent and relevant telecommunications practical experience.

or

- Have completed a Certificate III or a Certificate IV qualification in related technical fields of study with at least one year full time equivalent and relevant telecommunications practical experience.

or

Have completed a minimum of three years equivalent full-time experience in the telecommunications industry with particular technical experience in; installation of cabling; diagnosis and rectification of telecommunications system faults; and the delivery and operation of network infrastructure, for core and access networks in accordance with industry regulations and legislative requirements.

# Packaging Rules

**Total number of units = 12**

**5 core units** plus

**7 electives** units

The electives consist of:

- up to 7 units selected from the electives listed below
- up to 2 may be selected from any currently endorsed Training Package or accredited course at AQF Level 5 or above.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the AQF alignment and contribute to a valid, industry-supported vocational outcome.


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Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

Refer to the *Specialisations* information below, and to the Companion Volume Implementation Guide, for advice about choosing electives to support specialisations in particular sectors of the information and communications industry.

**Core Units**

BSBSUS501 Develop workplace policy and procedures for sustainability

BSBWHS501 Ensure a safe workplace

ICTPMG503 Prepare a project brief

ICTPMG504 Prepare project specifications

ICTTEN516 Produce technical solutions from business specifications

**Elective Units**

**Group A General administration**

BSBPMG522 Undertake project work

ICTICT508 Evaluate vendor products and equipment

ICTEDU501 Develop and deliver training associated with new and modified products

ICTPRO501 Develop training, marketing and sales resources for telecommunications products

ICTSUS501 Implement server virtualisation for a sustainable ICT system

ICTTEN502 Design a telecommunications project

**Group B General ICT**

ICTNWK516 Determine best-fit topology for a local network

ICTCMP501 Undertake radio communications site audit

ICTICT516 Test telecommunications network using virtual instruments

ICTPMG502 Develop customer premises equipment installation project plans

ICTTEN503 Design an electronic system for a telecommunications network

ICTTEN504 Acceptance test new systems and equipment

ICTTEN505 Commission telecommunications network equipment

ICTTEN506 Integrate new systems and equipment into the telecommunications network



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ICTTEN507 Cut over new and replacement network equipment

ICTTEN508 Locate, diagnose and rectify complex faults

ICTTEN509 Provide expert advice and support on complex faults

ICTTEN510 Undertake planned outage management

ICTTEN511 Administer a data communications network

ICTTEN512 Design and implement an enterprise voice over internet protocol and a unified communications network

ICTTEN515 Dimension and design a radio frequency identification system

ICTTEN517 Plan a wireless mesh network

**Group C Radio communications**

ICTRFN501 Test cellular handset enhancements and international roaming agreements

ICTRFN502 Test and measure cellular phone and network equipment performance

ICTRFN503 Evaluate and analyse radio frequency signal coverage plots

ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network

ICTRFN602 Produce and evaluate architecture designs for WiMAX networks

**Group D Network engineering and management**

ICTNPL503 Apply service measures and demand forecasting to products and services planning

**Group E Optical and network engineering**

ICTOPN501 Plan and configure dense wavelength division multiplexing systems

ICTOPN502 Perform acceptance and commissioning tests on optical network

ICTOPN503 Plan for an optical system upgrade and cut over

ICTOPN504 Test and commission a dense wavelength division multiplexing transmission system

ICTOPN505 Test the performance of specialised optical devices

ICTOPN506 Analyse and integrate specialised optical devices in the network

**Group F Management**

BSBDES501 Implement design solutions

BSBDES502 Establish, negotiate and refine a design brief

BSBDES601 Manage design realisation

BSBDES602 Research global design trends



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BSBFIM501 Manage budgets and financial plans

BSBPMG521 Manage project integration

BSBWHS504 Manage WHS risks

ICTNPL401 Apply business acumen to network planning

ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry

ICTPMG610 Develop a project management plan

**Group G Network engineering**

ICTNPL501 Develop planning strategies for core network design

ICTNPL502 Develop planning strategies for access network design

ICTNPL504 Develop planning strategies for building environment design

ICTTEN501 Provide consultancy and technical support in the customer premises equipment sector

ICTTEN513 Install, configure and test a local area network switch

ICTTEN514 Install, configure and test a server

**Specialisations**

The use of specialist streams is appropriate for this qualification in accordance with the AQF, Standards for Training Packages and the packaging rules. Where a specialist stream is achieved, testamurs must show the appropriate specialisation in brackets. Refer to the Companion Volume Implementation Guide for further advice about specialisations.

Minimum elective units required for the specific specialisations are described below.

**Management**

Select the following 5 units:

- ICTNPL401 Apply business acumen to network planning
- ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry
- ICTNPL503 Apply service measures and demand forecasting to products and services planning
- ICTPMG610 Develop a project management plan
- BSBFIM501 Manage budgets and financial plans.

The remaining 2 electives must be selected from Groups A, D and F only.



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**Network Engineering**

Select the following 4 units:

- BSBPMG522 Undertake project work
- ICTTEN502 Design a telecommunications project
- ICTTEN513 Install, configure and test a local area network switch
- ICTTEN514 Install, configure and test a server.

The remaining 3 electives must be selected from Groups A, B, C, D, E, and G only.

**Optical Network**

Select the following 5 units:

- ICTOPN501 Plan and configure dense wavelength division multiplexing systems
- ICTOPN502 Perform acceptance and commissioning tests on optical network
- ICTOPN503 Plan for an optical system upgrade and cut over
- ICTOPN504 Test and commission a dense wavelength division multiplexing transmission system
- ICTOPN506 Analyse and integrate specialised optical devices in the network.

The remaining 2 electives must be selected from Groups A, B and E only.

**Radio Communications**

Select the following 5 units:

- ICTRFN502 Test and measure cellular phone and network equipment performance
- ICTRFN503 Evaluate and analyse radio frequency signal coverage plots
- ICTRFN602 Produce and evaluate architecture designs for WiMAX networks
- ICTTEN502 Design a telecommunications project
- ICTTEN517 Plan a wireless mesh network.

The remaining 2 electives must be selected from Groups A, B and C only.

# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT51015 Diploma of Telecommunications Engineering | ICT50110 Diploma of Optical Networks | Updated to meet Standards for Training Packages. | No equivalent qualification |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | ICT50210 Diploma of Telecommunications Network Engineering<br><br>ICT50310 Diploma of Telecommunications Management<br><br>ICT50410 Diploma of Radio Frequency Networks | Changes to core units and packaging rules.<br><br>Increased total number of units required. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT51115 Diploma of Telecommunications Planning and Design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification reflects the role of a technical specialist with a range of telecommunications skills and extensive knowledge of the core and access network capabilities of the service provider. An individual in this role can:

- plan the development of the customer access network infrastructure
- plan the development of the core network for the service provider and asset owner
- plan network capacity for new technology in products and services
- analyse demand data and evaluate network growth and impact on the network.

This qualification prepares individuals to work in the telecommunications industry in planning and designing additions and implementations to accommodate network growth and new technologies. This is required for the national broadband infrastructure network planning.

*Licensing/Regulatory Information*

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Entry Requirements

Entry to this qualification is limited to those individuals who:

- Have completed a Certificate IV in Telecommunications Network Design or its equivalent.

or


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- Have completed a minimum of three years equivalent full-time relevant workplace experience in the telecommunications industry with experience in provisioning, evaluation, planning, design, costing and deployment of core networks and access networks.

# Packaging Rules

**Total number of units = 12**

**6 Core units plus**

**6 Electives units**

The elective units consist of:

- 6 units selected from any of the elective groups listed below.

A maximum of two elective units may be substituted with two units of competency from any currently endorsed Training Package or accredited course at AQF Level 5 or 6.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the Australian Qualifications Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

### Core

BSBPMG521 Manage project integration

BSBSUS501 Develop workplace policy and procedures for sustainability

ICTNPL501 Develop planning strategies for core network design

ICTNPL502 Develop planning strategies for access network design

ICTNPL503 Apply service measures and demand forecasting to products and services planning

ICTNPL504 Develop planning strategies for building environment design

### Electives



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**Financial management**

BSBFIM501 Manage budgets and financial plans

FNSORG506 Prepare financial forecasts and projections

**Education**

ICTEDU501 Develop and deliver training associated with new and modified products

**Design**

BSBDES501 Implement design solutions

BSBDES502 Establish, negotiate and refine a design brief

BSBDES601 Manage design realisation

BSBDES602 Research global design trends

**Network planning**

ICTNPL601 Plan the development and growth of the telecommunications network

**Project management**

ICTPMG503 Prepare a project brief

ICTPMG504 Prepare project specifications

ICTPMG610 Develop a project management plan

**Product skills and advice**

ICTPRO501 Develop training, marketing and sales resources for telecommunications products

**Sustainability**

ICTSUS501 Implement server virtualisation for a sustainable ICT system

**Telecommunications engineering networks**

ICTTEN501 Provide consultancy and technical support in the customer premises equipment sector

ICTTEN517 Plan a wireless mesh network



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# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT51115 Diploma of Telecommunications Planning and Design | ICT50513 Diploma of Telecommunications Planning and Design | Updated to meet Standards for Training Packages | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT60115 Advanced Diploma of Information Technology

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides high level information and communications technology (ICT), process improvement and business skills and knowledge to enable an individual to be effective in senior ICT roles within organisations. The qualification builds on a base core of management competencies, with specialist and general elective choices to suit particular ICT and business needs, especially in the areas of knowledge management and systems development.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 16**

**5 core units** *plus*

**11 elective units**

The elective units consist of:



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- 5 from one of the following specialist groups:
  Group A Knowledge management
  Group B Systems development.

Of the remaining elective units:

- up to 6 may be from the specialist elective groups below or from Group C general elective units below
- up to 3 may be from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

BSBWOR502 Lead and manage team effectiveness

ICTICT608 Interact with clients on a business level

ICTICT610 Manage copyright, ethics and privacy in an ICT environment

ICTPMG609 Plan and direct complex ICT projects

ICTSUS601 Integrate sustainability in ICT planning and design projects

**Elective units**

**Specialist elective units**

**Group A Knowledge management**

ICTDBS501 Monitor and improve knowledge management system

ICTDBS601 Build a data warehouse

ICTDBS602 Develop a knowledge management strategy

ICTICT604 Identify and implement business innovation

ICTICT605 Implement a knowledge management strategy

**Group B Systems development**

ICTICT508 Evaluate vendor products and equipment

ICTICT602 Develop contracts and manage contracted performance

ICTPRG604 Create cloud computing services

ICTSAD504 Implement quality assurance processes for business solutions



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ICTSAD505 Develop technical requirements for business solutions

ICTSAS601 Implement change management processes

**General elective units**

**Group C**

BSBINN601 Lead and manage organisational change

BSBMGT608 Manage innovation and continuous improvement

ICTDBS603 Determine suitability of database functionality and scalability

ICTICT601 Develop ICT strategic and action plans

ICTICT603 Manage the use of appropriate development methodologies

ICTICT606 Develop communities of practice

ICTICT609 Lead the evaluation and implementation of current industry specific technologies

ICTNWK601 Design and implement a security system

ICTNWK616 Manage security, privacy and compliance of cloud service deployment

ICTPMG606 Manage ICT project quality

ICTPRG601 Develop advanced mobile multi-touch applications

ICTPRG602 Manage the development of technical solutions from business specifications

ICTSAD602 Conduct knowledge audits

# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT60115 Advanced Diploma of Information Technology (Release 2) | ICT60115 Advanced Diploma of Information Technology (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT60215 Advanced Diploma of Network Security

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to plan, design, manage and monitor an enterprise information and communications technology (ICT) network as an independent ICT specialist or as part of a team responsible for advanced ICT network security systems. The qualification has a high-level ICT technical base with appropriate security units and the ability to specialise in a number of areas, including voice, wireless, network infrastructure and sustainability.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 12**

**5 core units** *plus*

**7 elective units**

The elective units consist of:

- up to 7 from the elective units listed below


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- up to 2 from elsewhere in ICT Information and Communications Technology Training Package at Diploma or Advanced Diploma level
- up to 2 from any other Training Package or accredited course at Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

ICTNWK502 Implement secure encryption technologies

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK601 Design and implement a security system

ICTNWK602 Plan, configure and test advanced server based security

ICTSUS601 Integrate sustainability in ICT planning and design projects

**Elective units**

BSBPMG517 Manage project risk

CPPSEC5003A Assess security risk management options

CPPSEC5004A Prepare security risk management plan

CPPSEC5005A Implement security risk management plan

CPPSEC5006A Determine strategy for the implementation of biometric technology

CPPSEC5007A Assess biometric system

CPPSEC3009A Prepare and present evidence in court

ICTICT609 Lead the evaluation and implementation of current industry specific technologies

ICTNWK603 Plan, configure and test advanced internetwork routing solutions

ICTNWK604 Plan and configure advanced internetwork switching solutions

ICTNWK605 Design and configure secure integrated wireless systems

ICTNWK606 Implement voice applications over secure wireless networks

ICTNWK607 Design and implement wireless network security

ICTNWK608 Configure network devices for a secure network infrastructure

ICTNWK609 Configure and manage intrusion prevention system on network sensors

ICTNWK610 Design and build integrated VoIP networks

ICTNWK611 Configure call processing network elements for secure VoIP networks

ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

ICTNWK613 Develop plans to manage structured troubleshooting process of enterprise networks



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ICTNWK615 Design and configure desktop virtualisation

ICTNWK616 Manage security, privacy and compliance of cloud service deployment

ICTPMG804 Evaluate and use telecommunications management networks

ICTPMG802 Manage a telecommunications project

ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects

ICTSUS804 Use ICT to improve sustainability outcomes

ICTSUS805 Manage improvements in ICT sustainability

ICTTEN811 Evaluate and apply network security

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT60215 Advanced Diploma of Network Security (Release 2) | ICT60215 Advanced Diploma of Network Security (Release 1) | Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT60315 Advanced Diploma of Information Technology Business Analysis

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This qualification first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to be competent in business analysis in an information and communications technology (ICT) environment, either as an independent ICT specialist or as leader of a team. Individuals who complete this qualification will be competent to analyse, identify and coordinate relevant ICT business solutions to meet given organisational goals.

### Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 15**

**9 core units** plus

**6 elective units**

The elective units consist of:

- up to 6 from the elective units listed below
- up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package at Advanced Diploma level.


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The elective units chosen must be relevant to the work outcome and meet local industry needs.

## Core units

ICTICT608 Interact with clients on a business level

ICTICT610 Manage copyright, ethics and privacy in an IT environment

ICTPMG609 Plan and direct complex IT projects

ICTSAD601 Perform IT-focused enterprise analysis

ICTSAD603 Plan and monitor business analysis activities in an IT environment

ICTSAD604 Manage and communicate IT solutions

ICTSAD605 Elicit IT requirements

ICTSAD606 Analyse stakeholder requirements

ICTSAD607 Manage assessment and validation of IT solutions

## Elective units

BSBWOR502 Lead and manage team effectiveness

BSBINN601 Lead and manage organisational change

BSBMGT608 Manage innovation and continuous improvement

ICTICT601 Develop IT strategic and action plans

ICTICT604 Identify and implement business innovation

ICTICT609 Lead the evaluation and implementation of current industry specific technologies

ICTNWK601 Design and implement a security system

ICTPMG601 Establish ICT project governance

ICTPMG603 Manage ICT project planning

ICTPMG606 Manage ICT project quality

ICTPRG602 Manage the development of technical solutions from business specifications

ICTSAD505 Develop technical requirements for business solutions



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# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT60315 Advanced Diploma of Information Technology Business Analysis | ICA60311 Advanced Diploma of Information Technology Business Analysis | Updated to meet Standards for Training Packages | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT60415 Advanced Diploma of Information Technology Project Management

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This qualification first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to manage a range of information and communications technology (ICT) projects to meet customer requirements. Projects may cover a wide range of specialities, including software development, hardware procurement and implementation, network analysis and deployment, and web and/or system development

### Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 15**

**6 core units** plus

**9 elective units**

The elective units consist of:

- up to 9 from the elective units listed below
- up to 3 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Advanced Diploma level.


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The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

ICTICT610 Manage copyright, ethics and privacy in an ICT environment

ICTPMG601 Establish ICT project governance

ICTPMG602 Manage ICT project initiation

ICTPMG603 Manage ICT project planning

ICTPMG604 Manage ICT project delivery

ICTPMG605 Manage ICT project closure

**Elective units**

BSBINN601 Lead and manage organisational change

ICTICT505 Determine acceptable developers for projects

ICTICT509 Gather data to identify business requirements

ICTICT603 Manage the use of appropriate development methodologies

ICTICT608 Interact with clients on a business level

ICTICT609 Lead the evaluation and implementation of current industry specific technologies

ICTICT813 Manage ICT services

ICTPMG606 Manage ICT project quality

ICTPMG607 Manage and control ICT project risks

ICTPMG608 Manage ICT project systems implementation

ICTPRG602 Manage the development of technical solutions from business specifications

ICTSAS505 Review and update disaster recovery and contingency plans

ICTSAS515 Manage the testing process

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT60415 Advanced Diploma of Information | ICA60411 Advanced Diploma of Information | Updated to meet Standards for | Equivalent |



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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| Technology Project Management | Technology Project Management | Training Packages | qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT60515 Advanced Diploma of Computer Systems Technology

## Modification History

| Release | **Comments** |
|---|---|
| Release 1 | This qualification first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge required to coordinate and administer the installation, commissioning and ongoing maintenance of a range of networks, enterprise servers and systems, including internetworking, security and e-business solutions.

An individual with these skills may be part of a team or provide services as an independent information and communications technology (ICT) specialist.

**Licensing/Regulatory Information**

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

## Entry Requirements

Nil

## Packaging Rules

**Total number of units = 18**

**12 core units** plus

**6 elective units**

The elective units consist of:

- up to 6 from the elective units listed below
- up to 3 from elsewhere in ICT Information and Communications Technology Training Package at Advanced Diploma level


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- up to 3 from any other Training Package or accredited course at Diploma or Advanced Diploma level.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

### Core units

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTNWK508 Install, operate and troubleshoot medium enterprise switches

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK529 Install and manage complex ICT networks

ICTNWK602 Plan, configure and test advanced server based security

ICTNWK607 Design and implement wireless network security

ICTPMG608 Manage ICT project systems implementation

ICTPMG609 Plan and direct complex ICT projects

ICTPRG527 Apply intermediate object-oriented language skills

ICTWEB501 Build a dynamic website

ICTWEB502 Create dynamic web pages

### Elective units

ICTDBS504 Integrate database with a website

ICTICT502 Develop detailed component specifications from project specifications

ICTICT604 Identify and implement business innovation

ICTICT609 Lead the evaluation and implementation of current industry specific technologies

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK504 Design and implement an integrated server solution

ICTNWK505 Design, build and test a network server

ICTNWK524 Install and configure network access storage devices

ICTNWK525 Configure an enterprise virtual computing environment

ICTNWK527 Manage an enterprise virtual computing environment



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ICTNWK533 Configure and manage advanced virtual computing environments

ICTNWK534 Monitor and troubleshoot virtual computing environments

ICTNWK535 Install an enterprise virtual computing environment

ICTNWK603 Plan, configure and test advanced internetwork routing solutions

ICTNWK605 Design and configure secure integrated wireless systems

ICTNWK610 Design and build integrated VoIP networks

ICTNWK611 Configure call processing network elements for secure VoIP networks

ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

ICTNWK613 Develop plans to manage structured troubleshooting process of enterprise networks

ICTNWK615 Design and configure desktop virtualisation

ICTNWK616 Manage security, privacy and compliance of cloud service deployment

ICTPRG505 Build advanced user interface

ICTPRG601 Develop advanced mobile multi-touch applications

ICTPRG602 Manage the development of technical solutions from business specifications

ICTSAS517 Use network tools

ICTWEB503 Create web-based programs

ICTWEB505 Develop complex web page layouts

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT60515 Advanced Diploma of Computer Systems Technology | ICA60511 Advanced Diploma of Computer Systems Technology | Updated to meet Standards for Training Packages | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT60615 Advanced Diploma of Telecommunications Network Engineering

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification reflects the role a technical specialist with high level skills and knowledge in telecommunications and information technology networks using internet protocol (IP) systems who can:

- forecast network growth for enterprise network planning
- design and manage IP based network telecommunications equipment
- implement convergence technologies in enterprise telecommunications networks
- design and manage optical and wireless network telecommunications architectures for high speed broadband capability.

*Licensing /Regulatory Information*

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Entry Requirements

*Nil*

## Packaging Rules

**Total number of units = 10**

**4 Core units** plus

**6 Elective** units

The elective units consist of:



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- all 6 units may be selected from the electives units listed below, with a minimum of 2 electives at AQF Level 6
- up to 2 elective units may be substituted with units of competency from any currently endorsed Training Package or accredited course at AQF Level 6 or above.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the AQF alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or are available within the ICT Information and Telecommunications Technology Training Package.

**Core Units**

ICTPMG610 Develop a project management plan

ICTPMG611 Prepare a detailed design brief

ICTSUS601 Integrate sustainability in ICT planning and design projects

ICTTEN611 Produce an ICT network architecture design

**Elective Units**

**ICT use (IP networks)**

ICTNWK502 Implement secure encryption technologies

ICTNWK503 Install and maintain valid authentication processes

ICTNWK509 Design and implement a security perimeter for ICT networks

ICTNWK517 Determine best-fit topology for a wide area network

ICTNWK518 Design an enterprise wireless local area network

ICTNWK520 Design ICT system security controls

ICTSAS409 Manage risks involving ICT systems and technology

ICTSAS505 Review and update disaster recovery and contingency plans

**Network planning**

ICTNPL601 Plan the development and growth of the telecommunications network

ICTNPL602 Forecast service demand

ICTNPL603 Undertake network performance analysis



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**Planning**

BSBDES601 Manage design realisation

BSBDES602 Research global design trends

**Work health and safety**

BSBWHS501 Ensure a safe workplace

BSBWHS504 Manage WHS risks

**Optical networks**

ICTOPN601 Manage optical ethernet transmission

ICTOPN602 Manage dense wavelength division multiplexing transmission system

ICTOPN603 Design a dense wavelength division multiplexing system

ICTOPN604 Analyse optical transmission systems

**Radio frequency networks**

ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network

ICTRFN602 Produce and evaluate architecture designs for WiMAX networks

**Sustainability**

ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects

**Telecommunications engineering networks**

ICTTEN601 Undertake qualification testing of new or enhanced equipment and systems

ICTTEN602 Undertake system administration

ICTTEN603 Undertake network traffic management

ICTTEN604 Coordinate fault rectification and restoration of service following network outages

ICTTEN605 Implement planned network changes with minimal impact to the customer

ICTTEN606 Manage a common channel signalling network

ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults

ICTTEN608 Verify new software and hardware releases

ICTTEN609 Produce and evaluate architecture designs for convergent cellular mobile networks



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**Emerging technologies**

ICTTEN612 Design and manage internet protocol TV in a service provider network

**IP networks**

ICTTEN610 Install and configure an IP-MPLS network with virtual private network tunnelling

# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT60615 Advanced Diploma of Telecommunications Network Engineering | ICT60210 Advanced Diploma of Telecommunications Network Engineering | Updated to meet Standards for Training Packages | Equivalent qualification |
| | ICT60110 Advanced Diploma of Optical Networks | Updated to meet Standards for Training Packages.<br><br>Changed packaging rules.<br>Changed core units. | No equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT80115 Graduate Certificate in Information Technology and Strategic Management

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to complete minor edits and update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides skills and knowledge for individuals to lead the analysis, implementation and management of emerging and converging information and communication technologies as they are integrated into the business process to support organisational strategic goals.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Entry to this qualification is limited to those who:

Have completed a Bachelor degree in related fields of study.

or

Have completed a Diploma or Advanced Diploma qualification in related fields of study and 2 years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.


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or

Three years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.

# Packaging Rules

**Total number of units = 4**

**1 core units** *plus*

**3 elective units**

The elective units consist of:

- up to 3 from the elective units listed below
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package, or any other Training Package or accredited course at Graduate Certificate level or above.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

**Core units**

ICTICT809 Facilitate business analysis

**Elective units**

BSBLDR803 Develop and cultivate collaborative partnerships and relationships

ICTICT801 Lead research into identifying new marketplace opportunities

ICTICT802 Direct ICT services

ICTICT803 Endorse business plan components for a new initiative

ICTICT804 Direct ICT in a supply chain

ICTICT805 Direct ICT procurement

ICTICT806 Direct outsourced ICT services

ICTICT807 Direct research and business response to new ICT technology

ICTICT808 Direct the development of a knowledge management strategy for a business

ICTICT810 Synchronise ICT projects

ICTICT811 Manage an information architecture project



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ICTICT812 Develop a business intelligence framework

ICTICT813 Manage ICT services

ICTICT814 Develop cloud computing strategies for a business

ICTSUS801 Plan and manage virtualisation for ICT sustainability

ICTSUS802 Conduct a business case study for integrating sustainability in ICT planning and design projects

ICTSUS804 Use ICT to improve sustainability outcomes

ICTSUS805A Manage improvements in ICT sustainability

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT80115 Graduate Certificate in Information Technology and Strategic Management (Release 2) | ICT80115 Graduate Certificate in Information Technology and Strategic Management (Release 1) | Minor edits.<br>Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2



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# ICT80215 Graduate Certificate in Information Technology Sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 3 | This version released with ICT Information and Communications Technology Training Package version 3.1.<br>Release 3 created to update qualification description. |
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for an individual to plan and manage the implementation of sustainability strategies for information and communication technology (ICT) networks and systems, including conducting applied research, developing organisational policy, and devising strategies to meet sustainability targets.

**Licensing/Regulatory Information**

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Entry to this qualification is limited to those who:

- Have completed a Bachelor degree in related fields of study.

or

- Have completed a Diploma or Advanced Diploma qualification in related fields of study and 2 years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.


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or

- Three years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.

# Packaging Rules

**Total number of units = 4**

**1 core unit** *plus*

**3 elective units**

The elective units consist of:

- up to 3 from the elective units listed below
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package, or any other Training Package or accredited course at Graduate Certificate level or above.

The elective units chosen must be relevant to the work outcome and meet local industry needs.

### Core units

ICTSUS802 Conduct a business case study for integrating sustainability in ICT planning and design projects

### Elective units

BSBLDR803 Develop and cultivate collaborative partnerships and relationships

ICTICT806 Direct outsourced ICT services

ICTICT807 Direct research and business response to new ICT technology

ICTICT809 Facilitate business analysis

ICTICT810 Synchronise ICT projects

ICTSUS801 Plan and manage virtualisation for ICT sustainability

ICTSUS803 Research strategies using SAP solutions for sustainable economic and environmental outcomes

ICTSUS804 Use ICT to improve sustainability outcomes

ICTSUS805 Manage improvements in ICT sustainability

ICTSUS806 Lead applied research in ICT sustainability



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ICTSUS807 Conduct and manage a life cycle assessment for sustainability

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT80215 Graduate Certificate in Information Technology Sustainability (Release 3) | ICT80215 Graduate Certificate in Information Technology Sustainability (Release 2) | Updates to qualification description. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT80315 Graduate Certificate in Telecommunications

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to complete minor edits and to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package<br>Version 1.0 |

## Qualification Description

This qualification provides the skills and knowledge for individuals to lead strategic and operational information and telecommunications networking solutions. Services and solutions cover a wide range of simple and convergent information and communications technologies requiring the analysis of current and future business and customer requirements; service or solution design; testing, delivery and optimisation.

The individual devises innovative solutions and delivery, using extensive consultation and collaboration with key stakeholders, in a range of situations including complex, geographically dispersed organisations.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Entry to this qualification is limited to those who:

Have completed a Bachelor degree in related fields of study.


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or

Have completed a Diploma or Advanced Diploma qualification in related fields of study and 2 years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.

or

Three years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.

# Packaging Rules

**Total number of units = 4**

**1 core unit** *plus*

**3 elective units**

The elective units must be relevant to the industry-supported vocational outcomes, local industry requirements and is to be chosen as follows:

The elective units consist of:

- up to 3 from the elective units listed below
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package, or any other Training Package or accredited course at Graduate Certificate level or above.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

### Core Units

ICTPMG802 Manage a telecommunications project

### Elective Units

BSBINN801 Lead innovative thinking and practice

BSBLDR803 Develop and cultivate collaborative partnerships and relationships

ICTICT811 Manage an information architecture project



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ICTICT813 Manage ICT services

ICTICT815 Manage automated ICT system applications using enterprise wide operating system

ICTPMG801 Manage a telecommunications workplace

ICTPMG804 Evaluate and use telecommunications management networks

ICTRFN801 Produce a radio link budget

ICTRFN802 Analyse a cellular mobile network system

ICTRFN803 Analyse a satellite communications system

ICTSUS804 Use ICT to improve sustainability outcomes

ICTSUS806 Lead applied research in ICT sustainability

ICTSUS807 Conduct and manage a life cycle assessment for sustainability

ICTTEN802 Manage alignment of systems with product and technology strategy

ICTTEN803 Translate domain and solution architectures into platform requirements and designs

ICTTEN804 Manage end to end architectural solutions across multiple domains

ICTTEN805 Manage solution architecture and impacts in line with organisational processes

ICTTEN806 Manage application layer solutions

ICTTEN807 Lead voice, data and internet protocol network solutions

ICTTEN808 Manage network testing strategies

ICTTEN809 Analyse business specifications to produce technical solutions

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT80315 Graduate Certificate in Telecommunications (Release 2) | ICT80315 Graduate Certificate in Telecommunications (Release 1) | Minor edits.<br>Updated unit codes. | Equivalent qualification |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT80415 Graduate Diploma of Telecommunications Network Engineering

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package<br>Version 1.0 |

## Qualification Description

This qualification provides the skills and knowledge for individuals in strategic and operational leadership roles in the technology domain. The individual provides domain thought leadership; assesses best possible and commercially viable telecommunications networks and systems solutions and services; plans changes to networks and systems in line with business strategy and enterprise product and technology roadmaps; analyses potential and real network problems; and develops innovative, commercially advantageous solutions.

The individual is a recognised authority and trusted business advisor for delivering tomorrow's solutions as well as optimisation of current network system performance and customer satisfaction. Research, analysis, design, development and deployment of technical and commercially viable solutions for: cloud computing, digital signal processing, cellular and satellite systems and telecommunications networks are requirements of the individual.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

Entry to this qualification is limited to those who:


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Have completed a Bachelor degree in related fields of study and 2 years equivalent full-time relevant workplace experience at a significant level of project or program leadership and management responsibility and/or complexity in an enterprise.

or

Have completed a Diploma or Advanced Diploma qualification in related fields of study and 3 years equivalent full-time relevant workplace experience at a significant level of project or program leadership and management responsibility and/or complexity in an enterprise.

or

Five years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.

# Packaging Rules

**Total number of units = 8**

**3 core units** *plus*

**5 elective units**

The elective units must be relevant to the industry-supported vocational outcomes, local industry requirements and is to be chosen as follows:

The elective units consist of:

- up to 5 from the elective units listed below
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Graduate Certificate level or above.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

**Core Units**

ICTPMG802 Manage a telecommunications project

ICTPMG804 Evaluate and use telecommunications management networks

ICTSUS806 Lead applied research in ICT sustainability



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**Elective Units**

BSBINN801 Lead innovative thinking and practice

ICTICT809 Facilitate business analysis

ICTICT801 Lead research into identifying new marketplace opportunities

ICTICT803 Endorse business plan components for a new initiative

ICTICT808 Direct the development of a knowledge management strategy for a business

ICTICT812 Develop a business intelligence framework

ICTICT814 Develop cloud computing strategies for a business

ICTICT815 Manage automated ICT system applications using enterprise wide operating system

ICTRFN801 Produce a radio link budget

ICTRFN802 Analyse a cellular mobile network system

ICTRFN803 Analyse a satellite communications system

ICTSUS807 Conduct and manage a life cycle assessment for sustainability

ICTTEN801 Plan a transmission network

ICTTEN805 Manage solution architecture and impacts in line with organisational processes

ICTTEN807 Manage voice, data and internet protocol network solutions

ICTTEN808 Manage network testing strategies

ICTTEN809 Analyse business specifications to produce technical solutions

ICTTEN810 Investigate the application of cloud networks in telecommunications switching

ICTTEN811 Evaluate and apply network security

ICTTEN812 Evaluate and apply digital signal processing to communications system

ICTTEN813 Produce engineering solutions using numerical computations and simulation

# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT80415 Graduate Diploma in Telecommunications Network Engineering (Release 2) | ICT80415 Graduate Diploma in Telecommunications Network Engineering (Release 1) | Unit codes updated. | Equivalent qualification |



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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT80515 Graduate Diploma of Telecommunications and Strategic Management

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0.<br><br>Release 2 created to update unit codes. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package<br>Version 1.0. |

## Qualification Description

This qualification provides the skills and knowledge for individuals to undertake strategic commercial and technical roles in the telecommunications industry. Individuals in this capacity collaborate with business leaders to set the telecommunications agenda, creating and deploying innovative and collaborative technologies that connect people and communities, enable superior levels of personal and collective productivity, and viably grow the telecommunications industry and enterprise profitability.

The individual is an authority and trusted business advisor in strategy development, identifying, designing, developing and deploying tomorrow's solutions. The individual leads and applies research; and analyses, designs, develops and deploys technical and commercially viable integrated solutions for businesses and organisations. The individual is regularly called upon to solve highly complex business and technical problems in geographically dispersed, dynamic and challenging environments.

### Licensing/Regulatory Information

*No licensing, legislative or certification requirements apply to this qualification at the time of publication.*

## Entry Requirements

*Entry to this qualification is limited to those who:*


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*Have completed a Bachelor degree in related fields of study and 2 years equivalent full-time relevant workplace experience at a significant level of project or program leadership and management responsibility and/or complexity in an enterprise.*

*or*

*Have completed a Diploma or Advanced Diploma qualification in related fields of study and 3 years equivalent full-time relevant workplace experience at a significant level of project or program leadership and management responsibility and/or complexity in an enterprise.*

*or*

*Five years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.*

# Packaging Rules

**Total number of units = 8**

**2 core units** *plus*

**6 elective units**

The elective units must be relevant to the industry-supported vocational outcomes, local industry requirements and is to be chosen as follows:

The elective units consist of:

- up to 6 from the elective units listed below
- up to 1 from elsewhere in ICT Information and Communications Technology Training Package or any other Training Package or accredited course at Graduate Certificate level or above.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Communications Technology Training Package.

### Core Units

BSBINN801 Lead innovative thinking and practice

ICTICT809 Facilitate business analysis



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**Elective Units**

ICTICT801 Lead research into identifying new marketplace opportunities

ICTICT803 Endorse business plan components for a new initiative

ICTICT808 Direct the development of a knowledge management strategy for a business

ICTICT812 Develop a business intelligence framework

ICTICT814 Develop cloud computing strategies for a business

ICTICT815 Manage automated ICT system applications using enterprise wide operating system

ICTPMG802 Manage a telecommunications project

ICTPMG804 Evaluate and use telecommunications management networks

ICTRFN801 Produce a radio link budget

ICTRFN802 Analyse a cellular mobile network system

ICTRFN803 Analyse a satellite communications system

ICTSUS806 Lead applied research in ICT sustainability

ICTSUS807 Conduct and manage a life cycle assessment for sustainability

ICTTEN801 Plan a transmission network

ICTTEN805 Manage solution architecture and impacts in line with organisational processes

ICTTEN807 Manage voice, data and internet protocol network solutions

ICTTEN808 Manage network testing strategies

ICTTEN809 Analyse business specifications to produce technical solutions

ICTTEN810 Investigate the application of cloud networks in telecommunications switching

ICTTEN811 Evaluate and apply network security

ICTTEN812 Evaluate and apply digital signal processing to communications system

ICTTEN813 Produce engineering solutions using numerical computations and simulation

# Qualification Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | Equivalence status |
|---|---|---|---|
| ICT80515 Graduate Diploma of Telecommunications and Strategic Management | ICT80515 Graduate Diploma of Telecommunications and Strategic Management | Updated unit codes. | Equivalent qualification |



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| **Code and title current version** | **Code and title previous version** | **Comments** | Equivalence status |
|---|---|---|---|
| (Release 2) | (Release 1) | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICT80615 Graduate Certificate in Telecommunications Network Engineering

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Qualification Description

This qualification reflects the role of a technical manager utilising a high level of technical management skills and knowledge in telecommunications networks and systems who can:

- plan changes and analyse network problems over a wide range of telecommunications technologies at managerial/supervisory levels
- diagnose problems and provide network management support
- plan a project from a design specification, research telecommunications technologies to meet the required specifications and report on the implementation of the project plan
- research and analyse the key concepts in design, construct and modify network management databases
- evaluate management systems and procedures used by the telecommunications industry.

Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Entry Requirements

Entry to this qualification is limited to those individuals who:

- Have completed a Bachelor degree in related fields of study.

or


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- Have completed a Diploma or Advanced Diploma qualification in related fields of study and two years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.

or

Have three years equivalent full-time relevant workplace experience at a significant level of leadership and management responsibility and/or complexity in an enterprise.

# Packaging Rules

**Total number of units = 6**

**3 Core units** plus

**3 Elective** units

The elective units consist of:

- all 3 elective units may be selected from the elective list below
- up to 2 elective units may be selected from any currently endorsed Training Package or accredited course at AQF Level 8 or above.

Elective units must be relevant to the work environment and the qualification, maintain the integrity of the Australian Qualification Framework (AQF) alignment and contribute to a valid, industry-supported vocational outcome.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT Information and Telecommunications Technology Training Package.

### Core Units

ICTPMG801 Manage a telecommunications workplace

ICTPMG803 Undertake a telecommunications project

ICTSUS804 Use ICT to improve sustainability outcomes

### Elective Units

### IT use (IP networks)

ICTICT815 Manage automated ICT system applications using Unix



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**Project management**

ICTPMG802 Manage a telecommunications project

**Sustainability**

ICTSUS805 Manage improvements in ICT sustainability

**Radio frequency networks**

ICTRFN801 Produce a radio link budget

**Telecommunications engineering networks**

ICTTEN801 Plan a transmission network

ICTTEN802 Manage alignment of systems with product and technology strategy

ICTTEN803 Translate domain and solution architectures into platform requirements and designs

ICTTEN804 Manage end to end architectural solutions across multiple domains

ICTTEN805 Manage solution architecture and impacts in line with organisational processes

ICTTEN806 Manage application layer solutions

ICTTEN807 Manage voice, data and internet protocol network solutions

ICTTEN808 Manage network testing strategies

ICTTEN809 Analyse business specifications to produce technical solutions

ICTTEN814 Manage development and application of testing artefacts

ICTTEN815 Manage project requirements and process implementations

ICTTEN816 Scope project requirements and process solutions

# Qualification Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICT80615 Graduate Certificate in Telecommunications Network Engineering | ICT70110 Vocational Graduate Certificate in Telecommunications Network Engineering | Updated to meet Standards for Training Packages | Equivalent qualification |



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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# BSBSUS401 Implement and monitor environmentally sustainable work practices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 2.0.<br><br>Version created to better align unit to AQF level. |

## Application

This unit describes the skills and knowledge required to effectively analyse the workplace in relation to environmentally sustainable work practices and to implement improvements and monitor their effectiveness.

It applies to individuals with responsibility for a specific area of work or who lead a work group or team and addresses the knowledge, processes and techniques necessary to implement and monitor environmentally sustainable work practices, including the development of processes and tools.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Industry Capability – Sustainability

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Investigate current practices in relation to resource usage | 1.1 Identify environmental regulations applying to the enterprise<br>1.2 Analyse procedures for assessing compliance with |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | environmental/sustainability regulations<br>1.3 Collect information on environmental and resource efficiency systems and procedures, and provide to the work group where appropriate<br>1.4 Collect, analyse and organise information from a range of sources to provide information/advice and tools/resources for improvement opportunities<br>1.5 Measure and document current resource usage of members of the work group<br>1.6 Analyse and document current purchasing strategies<br>1.7 Analyse current work processes to access information and data to assist in identifying areas for improvement |
| 2. Set targets for improvements | 2.1 Seek input from stakeholders, key personnel and specialists<br>2.2 Access external sources of information and data as required<br>2.3 Evaluate alternative solutions to workplace environmental issues<br>2.4 Set efficiency targets |
| 3. Implement performance improvement strategies | 3.1 Source and use appropriate techniques and tools to assist in achieving efficiency targets<br>3.2 Apply continuous improvement strategies to own work area of responsibility, including ideas and possible solutions to communicate to the work group and management<br>3.3 Implement and integrate environmental and resource efficiency improvement plans for own work group with other operational activities<br>3.4 Supervise and support team members to identify possible areas for improved practices and resource efficiency in work area<br>3.5 Seek suggestions and ideas about environmental and resource efficiency management from stakeholders and act upon where appropriate<br>3.6 Implement costing strategies to fully utilise environmental assets |
| 4. Monitor performance | 4.1 Use and/or develop evaluation and monitoring, tools and technology<br>4.2 Document and communicate outcomes to report on efficiency targets to key personnel and stakeholders<br>4.3 Evaluate strategies and improvement plans<br>4.4 Set new efficiency targets, and investigate and apply new tools |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and strategies<br>4.5 Promote successful strategies and reward participants where possible |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 1.6, 1.7, 2.3, 3.1 | • Identifies and analyses complex texts to determine legislative, regulatory and business requirements<br>• Reviews reported information to evaluate workplace strategies and improvement practices |
| Writing | 1.5, 1.6, 2.1, 2.2, 2.4, 3.1-3.3, 4.4, 4.5 | • Documents findings of investigations from written and oral sources according to organisational requirements<br>• Provides updates about progress using formats and language appropriate to the audience and context |
| Oral Communication | 2.1, 2.2, 3.3-3.5, 4.4, 4.5 | • Presents information and seeks advice using structure and language appropriate to audience<br>• Participates in discussions using listening and questioning to elicit the views of others and to clarify or confirm understanding |
| Numeracy | 1.5, 2.4, 3.1, 3.6, 4.4 | • Analyses numerical information to measure usage and calculates metric measurements, quantities/ratios and financial data using appropriate tools |
| Navigate the world of work | 1.1, 1.2 | • Recognises and follows legislative requirements and organisational policies and procedures associated with own role |
| Interact with others | 1.3, 2.1, 2.2, 3.3-3.5, 4.2, 4.4, 4.5 | • Selects and uses appropriate conventions and protocols when communicating with internal and external stakeholders to seek or share information<br>• Collaborates and consults with a range of stakeholders to achieve shared understanding of individual roles in meeting objectives |
| Get the work done | 1.2, 1.4-1.7, 2.3, 2.4, 3.1, 3.2, 3.3, 3.5, 3.6, 4.1, 4.3, 4.4 | • Develops plans to manage routine and non-routine tasks for own work group with an awareness of how they contribute to the broader organisation<br>• Uses systematic, analytical processes to set |


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| | | |
|---|---|---|
| | | environmental targets, gather relevant information, identify and evaluate alternative approaches<br>• Evaluates outcomes of decisions to identify opportunities for improvement<br>• Uses the main features and functions of digital tools to complete work tasks and access information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBSUS401 Implement and monitor environmentally sustainable work practices | BSBSUS301 Implement and monitor environmentally sustainable work practices | Recoded to meet AQF standards | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSUS401 Implement and monitor environmentally sustainable work practices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 2.0.<br><br>Version created to better align unit to AQF level. |

## Performance Evidence

Evidence of the ability to:

- analyse information from a range of sources to identify current procedures, practices and compliance requirements in relation to environmental and resource sustainability
- consult and communicate with relevant stakeholders to seek input and encourage engagement with developing and implementing sustainability improvements, encourage feedback and suggestions and report on outcomes
- plan and organise work group activities to:
  - measure current resource usage
  - solve problems and generate ideas for improvements
  - evaluate and implement strategies to improve resource usage
  - plan, implement and integrate improvements into operations
  - meet environmental requirements
- apply continuous improvement approach to sustainability performance
- apply change management techniques to support sustainability performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify relevant internal and external sources of information and explain how they can be used to identify sustainability improvements


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- explain the compliance requirements for the work area with reference to legislation, regulations, codes of practice and workplace procedures that relate to environmental and resource issues
- outline common environmental and energy efficiency issues within the industry
- give examples of benchmarks for environmental and resource sustainability that are relevant to the organisation
- outline organisational systems and procedures that relate to environmental and resource sustainability improvements including:
  - supply chain, procurement and purchasing
  - quality assurance
  - making recommendations and seeking approvals

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the sustainability field of work and include access to:

- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies or, where possible, real situations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# CPCPCM2043A Carry out WHS requirements

## Modification History

Changes to application, elements and performance criteria, required skills and knowledge, range statement and critical aspects

Not equivalent to CPCPCM2023A

## Unit Descriptor

This unit of competency specifies the outcomes required to carry out work health and safety (WHS) requirements through safe work practices in a plumbing and services work environment.

The unit requires the performance of work in a safe manner through awareness of risks, work requirements and the planning and performance of safe work practices with concern for personal safety and the safety of others.

It includes the initial response to workplace emergencies; the safe use of electricity; the identification of hazardous materials, including asbestos; and compliance with legislated work safety practices.

## Application of the Unit

This unit of competency supports safe work practices for the plumbing and services industry.

Site location for work application may be either domestic or commercial and may be a new work site or an existing structure or fitting being renovated, extended, restored or maintained. It could also be conducted in an on or off-site workshop or at a customer's premises.

The unit does not cover the removal of asbestos, which is a licensed activity.

## Licensing/Regulatory Information

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

## Pre-Requisites

Nil

## Employability Skills Information

This unit contains employability skills.



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# Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

# Elements and Performance Criteria

| | | | |
|---|---|---|---|
| 1 | Participate in workplace induction. | 1.1 | ***Workplace induction*** is received. |
| | | 1.2 | Location of emergency equipment is identified. |
| | | 1.3 | Current workplace emergency and evacuation procedures are identified. |
| | | 1.4 | Identify safe working conditions with employer. |
| | | 1.5 | Identify employee and employer rights and responsibilities regarding safe working conditions. |
| 2 | Assess risks. | 2.1 | Hazards in the work area are identified, assessed and reported to designated personnel. |
| | | 2.2 | WHS issues and risks in the work area are identified, assessed and reported to designated personnel. |
| | | 2.3 | ***Safe work practices***, procedures and instructions are followed. |
| | | 2.4 | WHS, hazard, accident or incident reports are completed according to workplace procedures and ***statutory and regulatory authorities*** and legislation. |
| 3 | Identify hazards and hazardous materials on work site. | 3.1 | Hazardous materials on a work site are identified, secured and tagged using appropriate signs and symbols; and if appropriate, handled and used according to company and legislated procedures. |
| | | 3.2 | Measures for controlling risks and construction hazards |


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| | | | |
|---|---|---|---|
| | | | are applied effectively and immediately. |
| | | 3.3 | ***Asbestos-containing materials (ACM) are identified*** on a work site ***and reported*** to designated personnel. |
| 4 | Plan and prepare for safe work practices. | 4.1 | Quality assurance requirements of company operations and safe work practices are identified and adhered to. |
| | | 4.2 | Personal protective equipment (PPE) is selected, correctly fitted and used according to the requirements of the job. |
| | | 4.3 | Tools and equipment are selected consistent with safe work practice requirements, checked for serviceability, and any faults are reported to supervisor. |
| | | 4.4 | Required barricades, hoardings and signage are determined and erected at job location. |
| | | 4.5 | Material safety data sheets (MSDS) are identified and applied. |
| | | 4.6 | ***Sustainability principles and concepts*** are observed when preparing for and undertaking work process. |
| 5 | Use safe work practices to carry out work. | 5.1 | Work is carried out safely and according to state or territory statutory requirements and company policy. |
| | | 5.2 | ***Safety hazards*** and common workplace accidents and incidents are identified in the course of work and reported according to policy. |
| | | 5.3 | Industry, site and personal safety rights and responsibilities are applied. |
| | | 5.4 | Prohibited tools and equipment in areas with identified asbestos are identified and isolated. |
| | | 5.5 | Firefighting equipment is selected and used according to type of fire and correct operating procedures. |
| | | 5.6 | Current site emergency and first aid procedures are followed. |


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| | | | |
|---|---|---|---|
| 6 | Maintain safety of self and others. | 6.1 | Safety signs, identified in terms of colour and shape, symbols and alarms, are adhered to. |
| | | 6.2 | Hazardous chemicals and materials are identified, handled and stored, maintaining the safety to self, others and the environment. |
| | | 6.3 | Incidents are reported according to legislative requirements and workplace procedures. |
| | | 6.4 | Common causes of accidents in the industry are identified and prevention measures implemented in line with site induction. |
| | | 6.5 | Site area is maintained to prevent incidents and accidents and protect self and others |
| 7 | Use electricity safely. | 7.1 | Safest supply and route for electrical supply are determined. |
| | | 7.2 | Leads are supported and placed according to regulations. |
| | | 7.3 | Power board visual check is conducted. |
| | | 7.4 | Leads and equipment are checked for tags and visual damage. |
| | | 7.5 | Electrical hazards are identified and reported. |
| 8 | Apply emergency response. | 8.1 | ***Emergencies*** are identified. |
| | | 8.2 | ***Emergency response*** is provided according to company procedures and requirements. |
| | | 8.3 | Details of actions taken are reported according to company procedures and requirements using appropriate communications. |
| 9 | Clean up work site area. | 9.1 | Work area is cleared and materials disposed of, reused or recycled according to legislation, regulations, codes of practice and job specifications. |
| | | 9.2 | Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations |


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and standard work practices.

9.3 Information is accessed and documentation completed according to workplace requirements.

# Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

- communication skills to:
  - complete written reports and other relevant documentation
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
- initiative and enterprise skills to:
  - evaluate safety issues in the workplace and determine appropriate action
  - recognise WHS hazards, including asbestos, and take all opportunities to alleviate safety problems in a variety of construction work sites and environments
- initiative and enterprise skills to identify and report to appropriate personnel any faults in tools or materials
- literacy skills to read and interpret:
  - documentation from a variety of sources
  - MSDS
  - work safety procedures and instructions
- self-management skills to deal calmly and effectively with any potential safety problems and work closely with other team members and supervisors to ensure safe working conditions are maintained
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technology skills to:
  - access and understand site-specific instructions in a variety of media
  - use mobile communication technology

### Required knowledge

- asbestos management code relating to prevention of exposure
- job safety analysis (JSA) and safe work method statements (SWMS)


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- manual handling techniques
- MSDS
- relevant legislation, regulations and workplace requirements relating to WHS, including hazard reduction and personal safety
- requirements for working in confined spaces and at height, including on rooves
- tools and equipment prohibited from being used near identified ACM
- risk assessment
- safe work practices in normal working environment
- types, possible location and risks of ACM, including serpentine and amphobile groups and their use in common building materials
- workplace and equipment safety requirements
- workplace hazards and their precautions and reduction
- workplace response to emergencies

# Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| **Overview of assessment** | This unit of competency could be assessed in the workplace or a close simulation of the workplace environment providing that simulated or project-based assessment techniques fully replicate plumbing and services workplace conditions, materials, activities, responsibilities and procedures. |
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | A person who demonstrates competency in this unit must be able to provide evidence of the ability to:<br>• locate, interpret and apply relevant information, standards and specifications for applying safe work practices in the workplace<br>• apply safety requirements throughout the performance of work sequences, including electrical requirements and personal protective clothing and equipment<br>• apply sustainability principles and concepts<br>• undertake site and workplace induction<br>• correctly identify the location of ACM<br>• understand and apply policies and procedures for reporting presence of ACM to designated personnel<br>• assess workplace risks and interpret and apply safe work practices |


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- understand workplace requirements for emergency response, including evacuation procedures
- correctly locate and identify workplace firefighting and other safety equipment and appliances
- correctly select and use appropriate processes, tools and equipment
- safely complete all work to specification
- comply with regulations, standards and workplace instructions, procedures and processes, including reporting and documentation
- communicate and work effectively and safely with others.

**Context of and specific resources for assessment**

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the minimum task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry-related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

**Method of assessment**

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or


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simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

## Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Workplace induction*** may include:

- first aid officers and kits


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| | |
|---|---|
| | • personnel competent and/or licensed in the safe handling of asbestos<br>• site induction work site locations<br>• specific site WHS issues<br>• specific site requirements. |
| ***Safe work practices*** are to be according to state and territory legislation and regulations and may include: | • handling of materials<br>• hazard control procedures and procedures for handling hazardous materials and substances<br>• PPE prescribed under legislation, regulations and workplace policies and practices<br>• use of firefighting equipment<br>• use of first aid equipment<br>• use of tools and equipment<br>• workplace environment and safety. |
| ***Statutory and regulatory authorities*** include: | • commonwealth, state or territory, and local authorities administering applicable Acts, regulations and codes of practice. |
| ***Identifying and reporting asbestos-containing materials***: | • includes recognising common types of ACM that may be found in construction materials and buildings<br>• covers asbestos rope/fabrics, asbestos cement sheeting, asbestos cement piping and lagging on pipes, bituminous waterproof membrane, millboard, asbestos flues, sheeting under ceramic or vinyl floor or wall tiles in wet areas<br>• involves reporting ACM to person in control of the workplace as set out in the relevant Asbestos Management Code. |
| ***Sustainability principles and concepts***: | • cover the social, economic and environmental use of resources to meet current and future needs<br>• may include:<br>  • selecting appropriate components and material<br>  • choosing efficient products<br>  • using material efficiently<br>  • storing and disposing of hazardous material to ensure minimal environmental impact. |


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| | |
|---|---|
| ***Safety hazards*** may include: | • hazards and risks associated with tools and equipment<br>• inflammable materials and fire hazards<br>• lifting practices<br>• lighting, gases, electricity and water<br>• spillage, waste and debris<br>• toxic and hazardous substances<br>• working at heights<br>• working in confined spaces. |
| ***Emergencies*** may include: | • accidents<br>• fires<br>• injuries<br>• sudden illness. |
| ***Emergency response*** may include: | • common site signs<br>• equipment tags<br>• facility or location signs<br>• safety barricades and warning signs<br>• site direction<br>• traffic signs<br>• workplace evacuation involving staff and customers. |

# Unit Sector(s)

**Functional area**

**Unit sector** Plumbing and services

# Custom Content Section

Not applicable.


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# CPCPCM2055A Work safely on roofs

## Modification History

Prerequisite unit updated

Changes to performance criteria, required skills and knowledge, range statement and critical aspects

Not equivalent to CPCPCM2035A

## Unit Descriptor

This unit of competency specifies the outcomes required to perform safe work practices when undertaking plumbing work on roofing structures.

## Application of the Unit

Site location for work application may be either domestic or commercial and may be a new work site or an existing structure being renovated, extended, restored or maintained.

## Licensing/Regulatory Information

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

## Pre-Requisites

| | |
|---|---|
| CPCPCM2043A | Carry out WHS requirements |

## Employability Skills Information

This unit contains employability skills..

## Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |


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# Elements and Performance Criteria

| | | | |
|---|---|---|---|
| 1 | Identify work safety requirements. | 1.1 | Scope of task and proposed work practices and activities are identified and documented according to workplace procedures, ***statutory and regulatory authorities'*** requirements and relevant ***information***. |
| | | 1.2 | ***Work health and safety*** (WHS) and ***environmental requirements*** associated with working safely on roofs are adhered to throughout the work. |
| | | 1.3 | ***Quality assurance requirements*** are identified and adhered to according to workplace requirements. |
| | | 1.4 | Site is inspected to determine layout and physical condition, condition of structure, prevailing weather conditions, equipment requirements and potential hazards. |
| | | 1.5 | Safety equipment is identified, selected and checked for serviceability according to workplace requirements. |
| | | 1.6 | Certification of suitability of structure to support the safety system is obtained. |
| 2 | Prepare for work. | 2.1 | Work procedures and instructions for the task are identified. |
| | | 2.2 | Materials, ***tools and equipment***, including personal protective equipment, are selected and checked for serviceability. |
| | | 2.3 | Fall protection and perimeter protection equipment is inspected and installed, ensuring adequacy for work and conformance to regulatory requirements. |
| | | 2.4 | ***Roof safety system*** is installed according to workplace and regulatory requirements. |
| | | 2.5 | Appropriate signage and barricades are selected and installed. |


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| | | | |
|---|---|---|---|
| 3 | Perform work on roof. | 3.1 | Access from ground to work area is checked to ensure it is safe and according to regulatory requirements. |
| | | 3.2 | Fall protection and personal safety requirements are applied according to regulatory requirements. |
| | | 3.3 | Manual handling of materials and equipment is undertaken according to regulatory requirements. |
| | | 3.4 | Roof materials and equipment are located on roof, ensuring that they are safely secured and distributed to eliminate risk of distorting or collapsing the building framework. |
| | | 3.5 | Safety system is checked periodically for compliance with regulations according to workplace procedures, and ***faults are reported***. |
| | | 3.6 | Risk control measures are monitored to ensure that they are effective and appropriate to the task and work environment. |
| | | 3.7 | Risk control measures are reassessed, as required, according to changed work practices and/or site conditions, and alterations are undertaken within scope of authority. |
| | | 3.8 | ***Sustainability principles and concepts*** are applied throughout the work process. |
| 4 | Clean up. | 4.1 | Safety system is dismantled according to sequence and removed from work site. |
| | | 4.2 | Work area is cleared and materials disposed of, reused or recycled according to legislation, regulations, codes of practice and job specification. |
| | | 4.3 | Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and workplace procedures. |
| | | 4.4 | Documentation is completed according to workplace requirements. |


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# Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

- communication skills to:
  - access information
  - determine requirements
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow instructions
  - report faults
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
- initiative and enterprise skills to:
- conduct a safety assessment of a roof work site
- identify and report to appropriate personnel any faults in tools, equipment or materials
- literacy skills to:
  - complete written workplace documentation
  - document scope of work and work practices
  - read and interpret:
    - documentation from a variety of sources
    - plans and specifications
- numeracy skills to apply measurements and calculations
- planning and organising skills to plan and set out work
- technical skills to provide necessary safety measures, including the installation of a roof safety system
- technology skills to:
  - access and understand site-specific instructions in a variety of media
  - use mobile communication technology

### Required knowledge

- job safety analysis (JSA) and safe work method statements (SWMS)
- nature of work undertaken on roofs
- processes of providing for safe work practices
- relevant statutory and regulatory authorities' requirements related to working safely on roofs
- risks associated with photovoltaic (solar) panels and systems
- roof safety equipment and systems and considerations to facilitate working safely on roofs
- SI system of measurement


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# Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

**Overview of assessment**

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment providing that simulated or project-based assessment techniques fully replicate plumbing and services workplace conditions, materials, activities, responsibilities and procedures.

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

A person who demonstrates competency in this unit must be able to provide evidence of:

- locating, interpreting and applying relevant information, standards and specifications for working safely on roofs
- applying safety requirements throughout the work sequence, including electrical safety requirements and the use of personal protective clothing and equipment
- given the plans and specifications for the roof working area of a corner, extending at least 4 metres in either direction and greater than 1.8m high, provide for erection, maintenance and dismantling of the fall and perimeter protection requirements for the site, incorporating handrails and footwalk or harnesses and harness fixing points for safe personal and stores access to the roof, stores and equipment locations; and risk assessment, ensuring:
  - application of sustainability principles and concepts
  - correct identification of risks and safety requirements
  - correct selection and use of appropriate processes, tools and equipment
  - completion of all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes
  - communicating and working effectively and


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safely with others.

**Context of and specific resources for assessment**

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the minimum task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry-related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

**Method of assessment**

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and


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environments.

- Validity and sufficiency of evidence requires that:
- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

**Guidance information for assessment**

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

# Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Statutory and regulatory authorities*** include:

- commonwealth, state or territory, and local authorities administering applicable Acts, regulations and codes of practice.

***Information*** may include:

- charts and hand drawings
- instructions issued by authorised organisational or


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| | |
|---|---|
| | external personnel<br>• material safety data sheets (MSDS)<br>• memos<br>• organisation work specifications and requirements<br>• plans and sketches<br>• regulatory and legislative requirements, particularly those pertaining to:<br>• building codes<br>• WHS and environmental requirements<br>• plumbing regulations<br>• relevant Australian standards<br>• safe work procedures relating to working on roofs<br>• signage<br>• verbal, written and graphical instructions<br>• work bulletins<br>• work schedules, plans and specifications. |
| ***Work health and safety*** is to be according to commonwealth, state and territory legislation and regulations and may include: | • handling of materials<br>• hazard control, including of electrical hazards<br>• personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices<br>• safe operating procedures, including recognising and preventing hazards associated with:<br>  • hazardous materials and substances<br>  • photovoltaic (solar) panels<br>  • service lines<br>  • surrounding structures and facilities<br>  • trip hazards<br>  • use of tools and equipment<br>  • work site visitors and the public<br>  • working at heights<br>  • working in proximity to others<br>• use of firefighting equipment<br>• use of first aid equipment<br>• workplace environment and safety. |
| ***Environmental requirements*** may include: | • clean-up protection<br>• ozone protection<br>• waste management. |


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***Quality assurance requirements*** may include:

- Environment Protection Authority (EPA)
- internal company quality assurance policy and risk management strategy
- International Standards Organisation
- site safety plan
- workplace operations and procedures.

***Tools and equipment*** include:

- fall protection
- ladders
- lifting and load shifting equipment, including:
  - chain blocks
  - cranes
  - elevated work platforms
  - forklifts
  - hand trolleys
  - hoists and jacks
  - rollers
  - scaffolds
- perimeter protection
- signage and barricades.

***Roof safety systems*** include:

- footwalks
- handrails
- harness fixing points
- kickboards
- safety harness
- scaffolds.

***Fault reporting*** include:

- may be written or verbal
- is to be according to company's workplace procedures.

***Sustainability principles and concepts***:

- cover the social, economic and environmental use of resources to meet current and future needs
- may include:
  - selecting appropriate components and material
  - choosing efficient products


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- using material efficiently.

# Unit Sector(s)

**Functional area**

**Unit sector** Plumbing and services

# Custom Content Section

Not applicable.


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# CUAANM301 Create 2D digital animations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to plan and implement design concepts and use industry animation software to create 2D animations for inclusion in interactive media products, short stand-alone animated sequences and basic games.

It applies to individuals who work in a team environment and report to a senior animator, designer, director or producer.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Animation and Digital Effects

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify animation requirements | 1.1 Clarify 2D animation requirements, including design specifications and storyboard in consultation with relevant people<br>1.2 Clarify target users or audience and requirements with regard to output formats and delivery platforms |
| 2. Generate and assess ideas | 2.1 Review animations, artworks and other creative sources that may inspire design ideas<br>2.2 Generate a range of animation ideas that are technically feasible, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | respond to specifications and provide creative solutions to all design issues<br>2.3 Discuss animation ideas with relevant people |
| 3. Plan approach | 3.1 Assess the range of 2D animation software to determine compatibility with design specifications<br>3.2 Select the most appropriate 2D animation software in consultation with relevant people<br>3.3 Evaluate initial design ideas and discuss with relevant people to select final design concept to meet production requirements and timelines |
| 4. Produce animations | 4.1 Apply basic screen, visual design, communication and animation principles and animation techniques to produce animated sequences based on concept<br>4.2 Use animation software to import or generate sufficient quantity of key frames to establish required actions<br>4.3 Check copyright conditions on images from external sources<br>4.4 Combine animated objects to produce single sequences according to creative requirements and specifications<br>4.5 Integrate audio assets where necessary<br>4.6 Adopt safe ergonomic practices when using screens and keyboards for long periods of time<br>4.7 Save and store animations using appropriate output file formats and standard naming conventions |
| 5. Finalise animations | 5.1 Review animations to assess creative solutions to design specifications, appropriateness to users or audience and technical feasibility<br>5.2 Discuss and confirm with relevant people additional requirements or modifications to overall designs or animations and undertake necessary amendments |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1, 2.1-2.3, 3.1, 3.3, 4.3, 4.4, 5.1 | • Interprets production documentation and design specifications in relation to own duties<br>• Locates and reviews creative sources that may inspire new ideas |
| Writing | 2.3, 4.1, 4.7, 5.2 | • Generates and records information for the design of 2D animations in required format<br>• Uses standard naming conventions and version control protocols when saving and storing files |
| Oral Communication | 1.1, 2.3, 3.2, 3.3, 4.1, 5.2 | • Obtains information by listening and questioning<br>• Uses clear language to discuss ideas, contribute information, and express requirements |
| Navigate the world of work | 4.3, 4.6 | • Complies with legislative requirements relevant to own position |
| Interact with others | 1.1, 2.3, 3.2, 3.3, 4.1, 5.2 | • Responds to and draws on others' perspectives when negotiating design of 2D animations<br>• Collaborates to achieve joint outcomes in the design process, playing an active role in facilitating effective group interaction |
| Get the work done | 1.1, 1.2, 2.1-2.3, 3.1-3.3, 4.1, 4.2, 4.4, 4.5, 5.1, 5.2 | • Organises and completes animation requirements in line with specifications, arranging consultations at key design points<br>• Takes responsibility for decisions directly related to completion of own tasks<br>• Uses digital software to create drawings and animations and to manage files |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUAANM301 Create 2D digital animations | CUFANM301A Create 2D digital animations | Updated to meet Standards for Training Packages. Performance criteria combined and reworded for clarity. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAANM301 Create 2D digital animations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- interpret design specifications and generate a range of creative ideas and concepts that respond to the brief
- collaborate with others to clarify requirements, discuss ideas, select final design concept and review final animations
- use animation software to create 2D animations that meet requirements of design briefs within production deadlines
- correctly name and store animations in appropriate file formats.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain basic animation techniques and principles
- describe screen, visual design and communication principles as they apply to animations
- outline intellectual property considerations if using images from external sources
- identify work health and safety standards as they apply to using screens and keyboards for extended periods of time.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- production documents and briefs
- resources, equipment and software required for 2D animations


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- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUAANM302 Create 3D digital animations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to animate simple 3D models and create 3D animations, which may include audio components. The models are for inclusion in interactive media products, short stand-alone animated sequences and basic games.

It applies to individuals who plan and create 3D animated sequences in consultation with relevant personnel in a wide variety of contexts in the digital content industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Animation and Digital Effects

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify animation requirements | 1.1 Clarify 3D animation requirements documented in design briefs with relevant personnel<br>1.2 Examine models to be animated to determine appropriate animation techniques<br>1.3 Identify file formats and delivery platform for animated sequences<br>1.4 Identify factors that may influence animation design approach |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Clarify work flow sequences with relevant personnel to ensure production schedule deadlines are met |
| 2. Plan approach | 2.1 Research animations, artworks and other creative sources that may inspire ideas<br>2.2 Generate a range of ideas for animations that are technically feasible, respond to briefs and provide creative solutions to all design issues<br>2.3 Present ideas to relevant personnel using appropriate design techniques<br>2.4 Adjust approach to incorporate feedback and agree on final design concept<br>2.5 Discuss and select 3D animation software with relevant personnel to ensure animated sequences meet technical and creative requirements<br>2.6 Identify audio assets to support animations as required |
| 3. Produce animated sequences for review | 3.1 Create 3D animations using software and animation techniques to suit design requirements<br>3.2 Adopt safe ergonomic practices when using equipment for long periods of time<br>3.3 Apply basic animation, screen, visual design and communication principles to produce animations<br>3.4 Apply real world camera techniques to virtual cameras used in 3D animation as required<br>3.5 Confirm with relevant personnel that models have not infringed copyright<br>3.6 Render completed animated sequences using appropriate output file formats<br>3.7 Save and store animated sequences using standard naming conventions and version control protocols<br>3.8 Demonstrate 3D animated sequences to relevant personnel for evaluation by agreed deadlines |
| 4. Finalise animated sequences | 4.1 Review animated sequences to assess creative solutions to design briefs, appropriateness to users or audience, and technical feasibility<br>4.2 Discuss and confirm additional requirements or modifications with relevant personnel, and complete changes as required for signoff |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 1.5, 2.1, 2.2, 3.5, 4.1 | • Interprets production documentation and design specifications in relation to own duties and copyright issues |
| Writing | 3.6, 3.7, 4.2 | • Generates and records information for the design of 3D animations in required format<br>• Uses standard naming conventions and version control protocols when saving and storing files |
| Oral Communication | 1.1, 1.5, 2.3-2.5, 4.2 | • Obtains information by listening and questioning<br>• Uses clear language to discuss ideas, contribute information, and express requirements |
| Navigate the world of work | 3.2, 3.5 | • Understands and complies with legislative requirements relevant to role |
| Interact with others | 1.1, 1.5, 2.3-2.5, 3.8, 4.2 | • Responds to and draws on others' perspectives when negotiating design of 3D animations<br>• Collaborates to achieve joint outcomes in the design process, playing an active role in facilitating effective group interaction |
| Get the work done | 1.1-1.5, 2.1-2.3, 2.5, 2.6, 3.3-3.8, 4.1, 4.2 | • Organises and completes animation requirements in line with specifications, arranging consultations at key design points<br>• Takes responsibility for decisions directly related to own tasks<br>• Uses digital software to create drawings and animations and to manage files |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUAANM302 Create | CUFANM302A Create 3D digital | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| 3D digital animations | animations | Training Packages. Performance criteria reworded for clarity. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAANM302 Create 3D digital animations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- interpret design specifications and generate a range of creative ideas and concepts that respond to the brief
- collaborate with others to clarify requirements, discuss ideas, select final design concept and review final animations
- use animation software to create 3D animations that meet requirements of design briefs within production deadlines
- correctly name and store animations in appropriate file formats.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain basic animation techniques and principles
- describe screen, visual design and communication principles as they apply to animations
- outline intellectual property considerations if using images from external sources
- outline work health and safety requirements as they apply to using screens and keyboards for extended periods of time.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- production documents and briefs
- resources, equipment and software required for 3D animations


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- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUAANM303 Create 3D digital models

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to create 3D digital models that meet technical and design specifications.

It applies to individuals who clarify production requirements and produce 3D models under supervision, but may have responsibility for planning their own work. They produce these 3D models primarily for online and mobile device application.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Animation and Digital Effects

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify work requirements | 1.1 Clarify requirements and purpose for 3D digital models with reference to production documents<br>1.2 Clarify workflow sequences in consultation with relevant personnel to ensure production schedule deadlines are met<br>1.3 Clarify with relevant personnel the modelling technique that suits production requirements<br>1.4 Discuss and select digital modelling software with relevant personnel that suits production delivery platform and modelling |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | techniques<br>1.5 Gather and analyse reference materials to help visualise 3D models |
| 2. Develop 3D digital models | 2.1 Use software features and apply modelling principles to block out models based on reference materials<br>2.2 Adopt safe ergonomic practices when using screens and keyboards for extended periods of time<br>2.3 Use software features and geometry to shape models and apply various effects as required<br>2.4 Check that models' topology allows appropriate deformation as required<br>2.5 Refine and check integrity of models progressively until they meet design requirements<br>2.6 Confirm with relevant personnel that models have not infringed copyright<br>2.7 Test models to identify faults, and modify as required<br>2.8 Demonstrate models to relevant personnel for feedback, and make adjustments as required |
| 3 Finalise 3D digital models | 3.1 Review 3D models to ensure creative solutions meet design specifications<br>3.2 Discuss and confirm with relevant personnel additional requirements or modifications to 3D models and undertake necessary amendments<br>3.3 Render and output models in appropriate format and submit to relevant personnel by agreed deadlines<br>3.4 Make back-up copies of files, and save and store 3D models using standard naming conventions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.2, 1.5 | • Analyses textual information from production documents and reference materials to confirm design requirements |
| Writing | 1.1, 1.2 | • Uses specific language appropriate to audience to clarify requirements and prepare work-related documentation |
| Numeracy | 2.1, 2.3 | • Uses knowledge of shapes, symmetry and solids to perform required adjustments to models |
| Oral Communication | 1.1-1.4, 2.6, 2.8, 3.2 | • Explains ideas and requirements clearly and listens carefully to verbal instructions<br>• Uses questioning and listening skills to clarify and confirm understanding |
| Navigate the world of work | 2.2, 2.6 | • Applies legislatives requirements relevant to own role |
| Interact with others | 1.1-1.4, 2.6, 2.8, 3.2, 3.3 | • Responds to and draws on others' perspectives when negotiating design of 3D digital models<br>• Collaborates to achieve joint outcomes in the design process, playing an active role in facilitating effective group interaction |
| Get the work done | 1.2-1.5, 2.1-2.8, 3.1-3.4 | • Plans, organises and implements tasks required to meet requirements within deadlines<br>• Makes aesthetic and technical decisions in collaboration with others<br>• Evaluates requirements and technical criteria to ensure design specifications are achieved<br>• Uses digital software to create models and to manage files |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUAANM303 Create 3D digital models | CUFANM303A Create 3D digital models | Updated to meet Standards for Training Packages. Minor edits to elements and performance criteria. Additional element. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAANM303 Create 3D digital models

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- create 3D digital models that meet design requirements and production deadlines
- collaborate with others to clarify requirements, discuss techniques, select modelling software and review models
- use 3D modelling software proficiently to build models and apply various modelling effects
- correctly store 3D models in appropriate file formats using industry naming conventions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the stages in the production process from initial design through to finished product
- outline basic modelling principles used to build 3D digital models
- explain how geometry is used to create scale, form, weight and volume in 3D models
- describe the concept of integrity as it applies to 3D modelling
- explain the relationship between topology and deformation
- describe the process of rendering as it applies to 3D modelling
- outline intellectual property considerations if using images from external sources
- outline work health and safety standards as they apply to using screens and keyboards for extended periods of time.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- production documentation
- software for producing 3D digital models
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUAANM402 Create digital visual effects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to use a range of industry software applications and material from various sources to create and refine digital visual effects sequences for projects in film, television or digital media productions, including games.

It applies to individuals who combine elements into the final image while retaining the established style and continuity of the project. They work collaboratively with a production team in 3D animation to meet production deadlines.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Animation and Digital Effects

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify work requirements | 1.1 Clarify requirements for digital visual effects with reference to production documentation<br>1.2 Clarify workflow sequences in consultation with relevant personnel to ensure production deadlines are met<br>1.3 Select software that best suits the type of production and delivery platform for which visual effects sequences are being created |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Gather and analyse reference material to help with visualisation of final sequences |
| 2. Prepare components | 2.1 Gather all assets for integration and check they are in the correct output file format and do not infringe copyright laws<br>2.2 Choose digital visual effects that best represent the vision of scripts to create optimum visual impact<br>2.3 Check components comply with storyboard requirements<br>2.4 Determine appropriate methods and techniques to create required digital visual effects |
| 3. Assemble previsualisations | 3.1 Create previsualisation of required visual effects sequences using appropriate assets and compositing techniques<br>3.2 Adopt safe ergonomic practices when using screens and keyboards for extended periods of time<br>3.3 Experiment with previsualisation to establish the best results and solve problems that arise during the process of creating the visual effects<br>3.4 Submit previsualisation visual effects sequences to relevant personnel for evaluation and feedback<br>3.5 Match elements as required, such as colour, lighting and camera |
| 4. Produce visual effects | 4.1 Create final visual effects<br>4.2 Generate additional required effects to final stage<br>4.3 Render visual effects to desired format<br>4.4 Submit visual effects sequences to relevant personnel for evaluation and feedback by agreed deadlines |
| 5. Finalise visual effects | 5.1 Respond to feedback by making adjustments to visual effects so they comply with design and production specifications<br>5.2 Save files to specified storage system accessible to production team<br>5.3 Make back-up copies of files, and save and store visual effects using appropriate output file formats and standard naming conventions<br>5.4 Review personal performance and the process of creating digital visual effects for improvement |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.1-2.3 | • Interprets textual and diagrammatic information to identify most efficient and productive approach to the job<br>• Refers to script and storyboard requirements at all times during production |
| Writing | 1.1, 1.2 | • Uses clear language to convey project workflow, process improvement opportunities and to complete work related documentation |
| Oral Communication | 1.1, 1.2, 2.4, 3.4, 4.4, 5.1, 5.2 | • Clearly states work requirements and listens carefully to discussion and feedback using questions as required |
| Navigate the world of work | 3.2, 5.3 | • Follows enterprise procedures when managing files and directories including back-up of files<br>• Follows work health and safety (WHS) requirements |
| Interact with others | 1.1, 1.2, 2.4, 3.4, 4.4, 5.1, 5.2 | • Collaborates and cooperates with other personnel to meet production deadlines<br>• Uses appropriate communication practices to seek and respond to feedback from others |
| Get the work done | 1.2-1.4, 2.1-2.4, 3.1-35, 4.1-4.4, 5.1-5.4 | • Solves technical and production problems as required<br>• Manages time and priorities to ensure job outcomes meet production requirements<br>• Makes decisions directly related to task requirements<br>• Selects appropriate software for a range of productions and selected delivery platforms |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUAANM402 Create digital visual effects | CUFANM402A Create digital visual effects | Updated to meet Standards for Training Packages. Minor edits to clarify performance criteria. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAANM402 Create digital visual effects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- create digital visual effects sequences that meet specifications provided in production documents
- select visual effects software appropriate for delivery platform
- assemble previsualisations based on storyboards and scripts to achieve optimum visual impact
- store visual effects in appropriate file formats using industry naming conventions
- work collaboratively with other production personnel to ensure product meets all requirements and production deadlines
- review own performance and the visual effects process for improvement.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline typical challenges of creating visual effects and how to handle these
- explain how effects such as lighting, colour and composition influence visual impact
- explain how the delivery platform impacts the visual effects creation process
- describe compositing methods and techniques as they apply to visual effects creation
- describe the process of rendering visual effects
- outline procedures for checking copyright requirements
- describe the relevant work health and safety standards which relate to working with computers and keyboards.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- production documents and briefs
- relevant personnel
- visual effects software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUACAM201 Assist with a basic camera shoot

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to assist with setting up and shooting low-budget, low-end single-camera video productions.

It applies to individuals who work under the direction of a qualified camera operator on pre-production and production tasks, including shooting footage with basic camera equipment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and Entertainment Production – Camera/Cinematography

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for camera shoots | 1.1 Confirm camera shoot requirements with relevant personnel<br>1.2 Take location features into account when organising and preparing equipment for shoots<br>1.3 Check equipment is clean and operational<br>1.4 Report equipment faults to relevant personnel<br>1.5 Check sufficiently charged batteries are available to meet production needs |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.6 Select required capture format and ensure sufficient supply for shoots |
| 2. Assist with camera set-up on location | 2.1 Use safe handling techniques when lifting camera and other equipment<br>2.2 Check camera and other equipment is safely secured<br>2.3 Under direction, assist with positioning camera to achieve required shots<br>2.4 Safely connect cables and camera to power source as required<br>2.5 Assist with final check of equipment prior to shoot and report faults to relevant personnel<br>2.6 Label and load capture media<br>2.7 Check camera tilt and pan functions |
| 3. Set up lighting | 3.1 Mount lighting equipment, following safety guidelines<br>3.2 Run lighting cables and connect safely to power sources<br>3.3 Position lights to achieve required effect as directed<br>3.4 Adjust focus and angles of lights as required<br>3.5 Install colour frames and gels according to lighting requirements |
| 4. Shoot video | 4.1 Adjust and move equipment as required<br>4.2 Operate clapperboard if needed<br>4.3 Operate camera according to manufacturer's guidelines and instructions<br>4.4 Shoot and record sequences as directed<br>4.5 Time-code recording of takes with descriptions as required |
| 5. Wrap up shoots | 5.1 Clean and pack equipment using safe lifting techniques<br>5.2 Check all equipment is accounted for and report faults to relevant personnel<br>5.3 Label recordings correctly and complete relevant documentation<br>5.4 Leave location in original condition and check there are no adverse effects to the site<br>5.5 Review and reflect on own performance and note areas for improvement |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.3 | • Recognises and interprets textual information to determine and adhere to requirements |
| Writing | 2.6, 4.4, 4.5, 5.3 | • Uses specific and accurate language to interpret and complete production documentation |
| Numeracy | 4.5 | • Performs calculations when recording time codes |
| Oral Communication | 1.1, 1.4, 2.3, 2.5, 3.3, 4.1, 4.4, 5.2 | • Listens carefully and responds to verbal instructions and creative directions as required<br>• Selects and uses appropriate language to report results and faults |
| Navigate the world of work | 1.3, 2.1, 2.2, 2.4, 3.1, 3.2, 5.1, 5.4 | • Takes responsibility for meeting legal and regulatory responsibilities within scope of own role and work context |
| Interact with others | 1.1, 1.4, 2.3, 2.5, 3.3, 4.1, 4.4, 5.2 | • Works collaboratively with technical experts to achieve desired results |
| Get the work done | 1.1, 1.2, 1.4-1.6, 2.5-2.7, 3.3-3.5, 4.1-4.3, 5.2 | • Plans and organises routine tasks, taking some limited responsibility for decisions regarding sequencing and timing<br>• Prioritises work tasks, meeting deadlines as required<br>• Recognises and responds to predictable routine problems<br>• Seeks assistance when problems are beyond immediate responsibilities or experience |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUACAM201 Assist with a basic camera shoot | CUFCAM201A Assist with a basic camera shoot | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUACAM201 Assist with a basic camera shoot

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- assemble required camera equipment and accessories in readiness for shoots
- connect cabling for equipment to power sources
- assist others with setting up and testing cameras and lighting for basic camera shoots
- follow workplace safety and security procedures
- operate a basic camera to shoot video under direction
- assist with clearing locations and packing equipment at the conclusion of shoots.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the type of cameras and lighting equipment used in low-end productions
- outline the full range of functions typically found on cameras employed in low-end productions and how they are used
- describe the type of lighting used for shooting low-end productions
- identify key personnel involved in low-end video productions
- describe work health and safety procedures that apply to working under direction on camera shoots.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- basic camera and lighting equipment


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- a range of locations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUACAM301 Shoot material for screen productions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to shoot material for screen productions using a single-camera unit.

It applies to individuals whose prime responsibility is to capture screen images using a range of video equipment. They generally work under direction, and perform all camera, sound and lighting functions. Depending on the scale of the shoot, they may have an assistant or may be required to assist senior camera operators.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and Entertainment Production – Camera/Cinematography

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for shoots | 1.1 Participate in pre-production briefings to confirm production and post-production requirements<br>1.2 Arrange equipment and accessories for shoots as directed, checking everything is clean and operational<br>1.3 Check there are adequate supplies of charged batteries and capture media for shoots |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Prepare and pack lighting equipment<br>1.5 Undertake minor repairs on faulty equipment and report significant faults to relevant production personnel<br>1.6 Confirm location, shooting schedules and timelines<br>1.7 Complete workplace documentation prior to shoots |
| 2. Set up on location | 2.1 Contribute ideas to initial concepts in discussion with crew and talent<br>2.2 Plan camera positions to ensure composition of shots provides correct visual interpretation of material or subject<br>2.3 Take safety of personnel on location into account when setting up and securing cameras and other equipment<br>2.4 Plan repositioning of equipment and accessories during shoots in line with production schedules<br>2.5 Label and load capture media and check camera functions<br>2.6 Position microphones and conduct audio check |
| 3. Set up lighting | 3.1 Assess quality and quantity of available light to determine whether correction is required<br>3.2 Mount and position lighting equipment following safety guidelines<br>3.3 Run lighting cables and connect safely to power sources<br>3.4 Install colour frames and gels according to requirements<br>3.5 Select lenses and filters appropriate to prevailing weather conditions |
| 4. Position and operate camera to capture shots | 4.1 Use camera shots and angles that produce effective cuts between shots in line with production requirements<br>4.2 Take account of editing or other post-production requirements while shooting<br>4.3 Check camera movements to implement planned or rehearsed shots according to direction from production personnel<br>4.4 Shoot and record sequences as directed, maintaining focus throughout |
| 5. Manipulate cables and camera positioning | 5.1 Participate in pre-production meetings and rehearsals to confirm final camera and cable movements<br>5.2 Position and move camera cabling during shoots according to instructions and cues from production personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.3 Respond consistently to cues from production personnel to avoid undue lapses in timing<br>5.4 Cooperate with other crew members to move cameras and cabling without impeding work of camera operators<br>5.5 Handle cabling without damaging equipment or causing injury to others |
| 6. Wrap up shoots | 6.1 Use safe lifting techniques when packing equipment and accessories<br>6.2 Label recorded material and associated documentation correctly<br>6.3 Report equipment faults and complete required documentation<br>6.4 Leave locations in original or improved condition<br>6.5 Review and reflect on own performance and note areas for improvement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.6, 3.2, 6.2 | • Recognises and interprets textual information to determine and adhere to requirements |
| Writing | 1.6, 1.7, 6.2, 6.3, 6.5 | • Completes production documentation according to requirements |
| Oral Communication | 1.1, 1.5, 2.1, 4.3, 5.1-5.3, 6.3 | • Listens carefully and responds to verbal and non-verbal instructions<br>• Selects and uses appropriate language to report results and faults |
| Navigate the world of work | 1.1, 2.3, 3.2, 3.3, 5.5, 6.1 | • Takes responsibility for meeting legal and regulatory responsibilities within scope of own role |
| Interact with others | 1.1, 1.5, 2.1, 5.1, 5.4 | • Works collaboratively with technical experts to achieve desired results |
| Get the work done | 1.2-1.6, 2.2, 2.5, 2.6, 3.1, 3.4, 3.5, 4.1-4.4, 5.2-5.4, 6.2-6.5 | • Plans, organises and implements routine tasks according to schedules<br>• Follows instructions to complete tasks according to |


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| | | |
|---|---|---|
| | | production requirements<br>• Makes decisions directly related to own role<br>• Recognises and responds to predictable routine problems<br>• Seeks assistance when problems are beyond immediate responsibilities or experience |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUACAM301 Shoot material for screen productions | CUFCAM301A Shoot material for screen productions | Updated to meet Standards for Training Packages. Minor edits to performance criteria to clarify intent. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUACAM301 Shoot material for screen productions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- contribute to pre-production discussions about ways to capture desired style of moving images
- assemble equipment and accessories in readiness for camera shoots
- position camera on location so shots are captured from the best angles
- safely set up and test sound equipment, lighting equipment and accessories
- safely operate a range of professional video camera equipment and accessories to capture shots as directed and in a way that facilitates post-production editing
- work within production deadlines
- work effectively as a team member to position equipment before and during shoots and to pack up gear at the conclusion of shoots
- assist with moving cables and cameras during shoots
- follow procedures to complete workplace documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline roles and responsibilities of production and post-production personnel
- identify typical problems that arise in the context of shooting material for screen productions, and briefly describe solutions
- explain how different image capture media are used
- describe basic framing techniques and methods of composition
- describe characteristics of microphones and audio equipment commonly used for shooting screen productions
- outline the effect different light sources, lenses and filters have on lighting sets and talent


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- explain basic principles of lighting that apply in the context of shooting material for screen productions
- describe techniques for handling and attaching cabling
- outline work health and safety procedures that apply to shooting on location.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- camera, lighting and sound equipment
- locations for shooting video
- productions for which material needs to be filmed
- production documents
- workplace safety and security procedures that apply to shooting video on location
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADIG201 Maintain interactive content

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to maintain interactive content for websites, learning resources or social media channels, using a content management system.

It applies to individuals, working under direction, who upload media assets and change text content.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Check content | 1.1 Confirm frequency of content updates and production deadlines with relevant personnel<br>1.2 Obtain, access and review content to ensure correct versions<br>1.3 Confirm existing content to be retained or deleted with relevant personnel |
| 2. Check links and media assets | 2.1 Check existing links are valid and source replacement links if required<br>2.2 Check assets are functional and in correct file format and size for |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | inclusion<br>2.3 Document technical and content issues in accordance with enterprise procedures<br>2.4 Confirm with relevant personnel that copyright clearance has been obtained on all new content |
| 3. Update content | 3.1 Access content management system to upgrade content<br>3.2 Adopt safe ergonomic practices when using equipment for long periods of time<br>3.3 Delete closed links and re-establish new site links if available<br>3.4 Check internal page links and rectify or delete as required<br>3.5 Import and/or change content material as required and specify appropriate metadata or tags<br>3.6 Make heading, typographical, caption and image revisions, applying appropriate style sheets and alt tags if required<br>3.7 Add pages or screens as required, applying appropriate templates or themes<br>3.8 Submit edited files to server, and check upload was successful<br>3.9 Advise relevant personnel if new interface designs are required to incorporate additional materials |
| 4. Test and confirm changes | 4.1 Check all content is displayed and functions on server as required<br>4.2 Confirm with relevant personnel that all changes have been made<br>4.3 Store original content securely and file using standard industry conventions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1, 2.3, 3.3-3.7, 4.1, 4.3 | • Identifies and follows familiar written instructions<br>• Checks content to ensure styles, links and subject |


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| | | |
|---|---|---|
| | | matter are accurate |
| Writing | 2.3, 3.3-3.7, 4.3 | • Accurately enters electronic information in required format<br>• Prepares technical documents in required format |
| Oral Communication | 1.1, 1.3, 2.4, 3.9, 4.2 | • Uses questioning and listening techniques to clarify requirements<br>• Uses clear, everyday language to discuss tasks with relevant personnel |
| Navigate the world of work | 2.3, 2.4, 3.2 | • Adheres to organisational and legislative requirements |
| Interact with others | 1.1, 1.3, 2.4, 3.9, 4.2 | • Uses appropriate communication practices to discuss and confirm requirements |
| Get the work done | 1.2, 2.1, 2.2, 3.1, 3.3-3.8, 4.1, 4.3 | • Plans and completes work tasks, seeking advice as necessary<br>• Uses relevant software to examine, amend and upload interactive content |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUADIG201 Maintain interactive content | CUFDIG201A Maintain interactive content | Updated to meet Standards for Training Packages. Minor edits to performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG201 Maintain interactive content

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- maintain interactive content for websites and/or social media channels including:
  - checking links and media assets
  - updating text, media assets and pages
  - assigning correct metadata or tags
  - checking that changes have uploaded successfully
- use a content management system proficiently
- document technical and content issues according to enterprise procedures
- store content according to industry conventions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain how outdated links impact usability of web pages
- explain the procedure for checking copyright clearance
- describe how metadata and tags are used to classify content
- describe the purpose of alt tags and how they relate to accessibility standards
- explain safe work practices in relation to working on computers for periods of time.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:


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- appropriate content
- content management system, the internet and authoring tools.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADIG301 Prepare video assets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare video assets for inclusion in interactive media.

It applies to individuals who work in collaboration with others and under supervision to convert video into forms appropriate for streaming, downloading and/or digital media products. In smaller organisations, they may combine this role with video editing, authoring or programming.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify video assets | 1.1 Obtain and assess digital video content as determined by production<br>1.2 Clarify production schedules and deadlines with relevant personnel<br>1.3 Identify file format, output purpose, destination and platform of source video according to production requirements<br>1.4 Discuss, with relevant personnel, required output file format and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | codecs for specified bandwidths, and appropriate video encoding software |
| 2. Prepare video assets | 2.1 Load video files into appropriate video encoding software<br>2.2 Check duration and quality of video sequences meet production requirements, and balance and clip sequence if necessary<br>2.3 Determine and apply appropriate video and audio codecs to meet quality standards<br>2.4 Batch and optimise video files where possible<br>2.5 Save files in appropriate output file format using standard industry or enterprise naming conventions<br>2.6 Follow safe ergonomic practices when using computer equipment for long periods of time |
| 3. Package video assets | 3.1 Assign metadata tags if required<br>3.2 Group files in folder system using standard industry or enterprise naming conventions<br>3.3 Archive and store in share drive or asset repository for production team access |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 2.2, 2.5, 3.1, 3.2 | • Identifies and interprets information in organisational documents<br>• Locates correct folders for storing electronic data<br>• Checks textual information for accuracy |
| Writing | 2.5, 3.1, 3.2 | • Writes metadata tags to aid classification of files<br>• Applies standard naming conventions to electronic data |
| Oral Communication | 1.2, 1.4 | • Discusses video requirements using industry appropriate language<br>• Uses questioning and listening techniques to clarify requirements |


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| | | |
|---|---|---|
| Numeracy | 2.2, 2.3 | • Calculates basic bandwidth requirements |
| Navigate the world of work | 2.5, 2.6, 3.2 | • Complies with enterprise and legislative requirements |
| Interact with others | 1.2, 1.4 | • Uses appropriate communication practices and protocols to confirm requirements with personnel |
| Get the work done | 1.1-1.4, 2.1-2.5, 3.1-3.3 | • Plans and completes tasks required to achieve requirements within deadlines<br>• Makes decisions directed related to completion of tasks<br>• Used digital tools to prepare and store video assets |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUADIG301 Prepare video assets | CUFDIG301A Prepare video assets | Updated to meet Standards for Training Packages. Performance criteria edited and added. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG301 Prepare video assets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare video sequences for use in media distribution channels or interactive media products
- use video encoding software to prepare video sequences that meet quality requirements within production deadlines
- save and store files according to industry or enterprise conventions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the features of the delivery platforms used to prepare video assets
- explain why video file compression is required
- identify common digital video sources and output formats
- explain appropriate codecs for various platforms and destinations
- describe techniques for saving and preparing digital video output to optimise file size
- explain purposes and procedures for correctly naming and tagging video files
- explain safe work practices in relation to working on computers for periods of time.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- video encoding and editing software and equipment
- manuals and instructions.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADIG302 Author interactive sequences

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to use an authoring tool to produce discrete interactive sequences for websites.

It applies to individuals working collaboratively with technical assistance and under direction, who develop small components such as web pages or a sequence of screens, which are integrated into a larger project.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan use of authoring tool | 1.1 Identify a range of appropriate authoring software and discuss their application to various delivery platforms with relevant people<br>1.2 Clarify design specifications of the project and deadlines with relevant people<br>1.3 Discuss with relevant personnel the technical requirements of the project and select appropriate authoring software |
| 2. Prepare to author | 2.1 Load selected authoring software, create a new file in website |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| sequence | directory for specified task and name using standard industry naming conventions<br>2.2 Source and assemble all media assets and text content, and check compliance with copyright conditions<br>2.3 Display and use tools and features of authoring software<br>2.4 Adopt safe ergonomic practices when using screens and keyboards for extended periods of time |
| 3. Produce interactive sequences | 3.1 Produce screen layout according to design specifications applying basic visual design principles and/or templates or themes<br>3.2 Create interactive media components as required<br>3.3 Source text content and apply style sheets to format text<br>3.4 Source relevant media assets, optimise if required, and integrate using appropriate file formats<br>3.5 Link all components according to production storyboard<br>3.6 Manipulate HTML mark-up code where errors are occurring or to refine sequence functionality<br>3.7 Apply features to optimise accessibility<br>3.8 Save file to website directory structure as components are produced |
| 4. Check functionality of interactive sequence | 4.1 Check interactive elements function with minimal error on a variety of devices, operating systems and browsers<br>4.2 Incorporate changes as required<br>4.3 Present sequence to relevant people |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2, 3.1, 3.3, 3.5, 3.6, 3.8 | • Identifies and interprets information in organisational documents<br>• Locates correct folders for storing electronic data<br>• Checks textual information for accuracy |


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| | | |
|---|---|---|
| Writing | 2.1, 3.6, 3.8 | • Selects the vocabulary and conventions appropriate to text for writing code and naming files |
| Oral Communication | 1.1-1.3, 4.3 | • Asks questions and listens carefully to confirm design and technical specifications of the project |
| Navigate the world of work | 2.2, 2.4 | • Complies with legislative requirements |
| Interact with others | 1.1-1.3, 4.3 | • Uses appropriate communication practices and protocols to confirm requirements and present interactive sequences |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.8, 4.1, 4.2 | • Takes responsibility for planning and producing interactive sequences according to project requirements and design principles<br>• Makes decisions directed related to completion of tasks<br>• Uses digital tools to create, optimise and store interactive sequences |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUADIG302 Author interactive sequences | CUFDIG302A Author interactive sequences | Updated to meet Standards for Training Packages. Minor edits to elements and performance criteria to clarify intent. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG302 Author interactive sequences

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- assemble text content, interactive media components and media assets required for a project
- use appropriate software to produce interactive media sequences that meet design and project specifications within deadlines
- apply visual design principles, templates, style sheets and HTML mark-up language to interactive sequences
- check interactive sequence functionality on at least two operating systems, browsers and devices
- save and store files correctly.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list appropriate file formats for web delivery
- outline when optimisation of media assets is necessary
- explain why application of accessibility standards in the web environment is important
- describe basic visual design principles as they apply to website page layout
- explain safe work practices in relation to working on computers for periods of time
- explain the procedure for checking copyright clearance.


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## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- text and media assets
- authoring software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADIG303 Produce and prepare photo images

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare photo images for integration into an interactive media sequence or product.

It applies to individuals who produce a variety of photo images for production of virtual worlds, from digital still composition to panoramas. They work closely with a programmer or interactive media author and may offer technical advice and support to a team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Use scanner to capture photo images | 1.1 Source and identify appropriate photographic images according to requirements of photographic project brief<br>1.2 Discuss selection of images with relevant personnel, and check compliance with copyright conditions<br>1.3 Assess scanner features to confirm quality outcomes will meet brief requirements<br>1.4 Operate scanner according to manufacturer’s specifications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Use appropriate scanner settings to ensure image output meets production requirements<br>1.6 Transfer and store photographic image files to a computer using standard naming conventions |
| 2. Use digital camera to create photo images | 2.1 Clarify photographic project brief with relevant personnel<br>2.2 Assess digital camera features to ensure outcome will meet requirements of brief<br>2.3 Plan camera shots, taking into account lighting, framing, composition and other relevant factors<br>2.4 Load and operate digital camera according to manufacturer's specifications<br>2.5 Consider digital camera focus, exposure and shutter speed to ensure image capture meets production requirements<br>2.6 Check photographic images meet brief requirements<br>2.7 Transfer and store photographic image files to a computer using standard naming conventions |
| 3. Edit photo images | 3.1 Load digital imaging software and import photo image source files<br>3.2 Adopt safe ergonomic practices when using screens and keyboards for extended periods of time<br>3.3 Manipulate and save digital images using designated digital imaging software<br>3.4 Create photo images that incorporate visual design and communication principles<br>3.5 Evaluate outcome for visual impact, effectiveness and fitness for purpose<br>3.6 Confirm images meet project requirements with relevant personnel |
| 4. Prepare photo image assets | 4.1 Save files in appropriate output format to meet platform requirements<br>4.2 Assign metadata tags if required<br>4.3 Group files logically in a folder system using standard naming conventions<br>4.4 Store files in share drive or repository for production team access |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4-1.6, 2.4-2.7, 4.1, 4.3 | • Interprets textual information to follow equipment operation and project requirements |
| Writing | 1.6, 2.7, 4.1-4.3 | • Selects the vocabulary and conventions appropriate to text for naming files |
| Oral Communication | 1.2, 2.1, 3.6 | • Uses listening and questioning techniques to discuss project brief and to confirm outcomes<br>• Uses descriptive and technical language to participate in oral exchanges |
| Navigate the world of work | 1.2, 3.2 | • Complies with legislative requirements |
| Interact with others | 1.2, 2.1, 3.6 | • Uses appropriate communication practices and protocols to confirm requirements and present images |
| Get the work done | 1.1, 1.3-1.6, 2.2-2.7, 3.1, 3.3-3.6, 4.1-4.4 | • Takes responsibility for logically planning and producing photo images according to design briefs and visual design principles<br>• Makes decisions directly related to task completion<br>• Utilises a range of features within digital cameras, scanners and digital imaging software to create and store photo images |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUADIG303 Produce and prepare photo images | CUFDIG303A Produce and prepare photo images | Updated to meet Standards for Training Packages. Minor edits to performance criteria. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG303 Produce and prepare photo images

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- use a scanner and digital camera to capture images that satisfy project briefs
- use digital imaging software and techniques, design and communication principles to produce images that meet project requirements
- save and store files according to requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the features of a digital camera that are essential for creating images to the required standard
- outline the basic techniques used to compose camera shots
- explain how visual design and communication principles are are relevant to photography
- explain safe work practices in relation to working on computers for periods of time
- explain the procedure for checking copyright clearance.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- a scanner and digital camera
- digital imaging software
- project briefs
- information or manuals about operating equipment.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

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# CUADIG304 Create visual design components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to create visual designs for interactive media components that can be integrated into a range of media products.

It applies to individuals who generate and assess ideas to create visual design components in response to specifications under supervision in a team environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify work requirements | 1.1 Clarify visual design components required in the project brief, in consultation with relevant personnel<br>1.2 Identify project timelines and discuss factors that may determine or affect visual design concepts<br>1.3 Clarify, in discussion with relevant personnel, the target user or audience, and determine format and delivery platform |
| 2. Generate and assess ideas | 2.1 Research media products, designs, images, artwork and other creative sources that may inspire visual design ideas |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Develop a range of visual design ideas that are technically feasible, respond to project specifications and provide creative solutions to design issues<br>2.3 Present and review visual design ideas with relevant personnel |
| 3. Develop design concept | 3.1 Experiment with traditional and digital methods to create required visual design components<br>3.2 Explore a range of typographical and visual design elements to create components<br>3.3 Evaluate initial design ideas with relevant personnel to select final design concept<br>3.4 Confirm design concept complies with copyright laws<br>3.5 Check output format meets delivery platform requirements<br>3.6 Adopt safe ergonomic practices when using equipment for long periods of time |
| 4. Produce components | 4.1 Develop components based on the final design concept using various design techniques<br>4.2 Apply visual design principles and communication principles to produce components that have high visual impact<br>4.3 Save components in an appropriate format according to project specifications |
| 5. Finalise visual design components | 5.1 Review visual design components against design and technical specifications<br>5.2 Discuss and confirm additional requirements or modifications with relevant personnel, and make amendments as required<br>5.3 Save and archive visual design components using industry or enterprise naming conventions and version control protocols |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 3.1, 3.2, 3.3, | • Reviews and researches creative source material to generate ideas |


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| | | |
|---|---|---|
| | 4.1, 4.3, 5.1, 5.2, 5.3 | • Checks that output meets requirements<br>• Locates correct folders for storing electronic data |
| Writing | 2.2, 3.1, 3.2, 4.1, 4.3, 5.2, 5.3 | • Prepares information to accompany design components<br>• Names files according to requirements |
| Oral Communication | 1.1-1.3, 2.3, 3.3, 4.3, 5.2 | • Participates effectively in spoken interactions using active listening and questioning to confirm and clarify understanding |
| Navigate the world of work | 3.4, 3.6 | • Complies with legislative requirements |
| Interact with others | 1.1-1.3, 2.3, 3.3, 4.3, 5.2 | • Collaborates with relevant personnel to ensure that end result meets requirements |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.3, 3.5, 4.2, 4.3, 5.1-5. | • Takes responsibility for planning and producing design components according to project requirements and design principles<br>• Makes decisions directed related to completion of tasks<br>• Uses experimentation to develop new or innovative design approaches<br>• Selects and uses appropriate software to conceive, produce, store and present visual design components |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUADIG304 Create visual design components | CUFDIG304A Create visual design components | Updated to meet Standards for Training Packages. Minor edits to elements and performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG304 Create visual design components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- explore and experiment with design techniques and visual design and communication principles to produce ideas and concepts for visual design components
- use design techniques to create visual design components that respond effectively to a project brief
- present and discuss ideas, concepts and designs with relevant personnel
- save and archive files using standard industry or enterprise naming conventions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe differences between traditional and digital methods in creating visual images, and advantages and disadvantages of each
- describe visual design, typographic and communication principles used to construct visual design components
- explain safe work practices in relation to working on computers for periods of time
- explain the procedure for checking copyright clearance.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- project briefs
- relevant software


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- manuals and information to support software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

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# CUADIG401 Author interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to author a complete interactive media product, for example, an entire website.

It applies to individuals who apply sound knowledge of mark-up and scripting languages to develop templates, themes styles sheets, forms and form objects for programmers and the technical support team. They may also use a variety of authoring software used to produce complex interactions such as digital simulations, games and puzzles. They work primarily on client-side technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify multimedia elements | 1.1 Assess design specifications to determine technical and creative objectives of the project<br>1.2 Locate and assess content required for production<br>1.3 Discuss issues of integration and formats of media assets with relevant personnel, and confirm production timelines<br>1.4 Determine, with relevant personnel, an interactive sequence to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | become the prototype |
| 2. Identify scope of authoring software | 2.1 Identify a range of industry-standard authoring software and assess in relation to specified delivery platform<br>2.2 Discuss suitability of authoring software to meet specified outcomes with relevant personnel<br>2.3 Select authoring software to meet production requirements |
| 3. Use authoring software | 3.1 Load authoring software and create a file directory structure for the specified task and name using standard industry or enterprise naming conventions<br>3.2 Display and use tools and features of authoring software relevant to the authoring process<br>3.3 Adopt safe ergonomic practices when using screens and keyboards for extended periods of time. |
| 4. Create interactive sequence | 4.1 Slice and reassemble the user interface appropriate to the authoring software<br>4.2 Import and assemble components in appropriate sequence according to creative requirements<br>4.3 Create interactive features according to creative and technical requirements, sourcing and writing appropriate mark-up and scripting languages as required<br>4.4 Check that interactive sequence conforms to navigation design<br>4.5 Integrate media assets to optimum levels of technical performance<br>4.6 Check interactive sequence conforms to loading specifications<br>4.7 Test for interoperability and accessibility, eliminate all bugs and validate scripting<br>4.8 Present interactive sequence as a prototype ensuring sequence meets creative, production and technical requirements<br>4.9 Save output file formats and identify for specified purpose |
| 5. Evaluate interactive prototype | 5.1 Present prototype to relevant personnel<br>5.2 Evaluate prototype against design specifications, including achievement of a creative and user-centred product<br>5.3 Discuss and agree on any required changes and make adjustments to prototype<br>5.4 Assist in user testing as required |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.5 Evaluate feedback from user testing<br>5.6 Seek confirmation from relevant personnel to transform prototype into final product |
| 6. Finalise interactive media product | 6.1 Make necessary changes as indicated by user testing<br>6.2 Replicate prototype functionality to complete the interactive product<br>6.3 Make final checks to ensure sequences conform to design specifications<br>6.4 Test for interoperability and accessibility, eliminate bugs and validate scripting<br>6.5 Save to specified storage system accessible to production team<br>6.6 Assist in loading product to specified platform as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.1, 4.2-4.4, 4.6-4.9, 5.2, 5.5, 6.1, 6.3, 6.4, 6.5 | • Selects and applies a range of reading strategies to interpret design and technical requirements<br>• Reviews and interprets feedback from user trials to enable completion of final product<br>• Validates scripting to ensure accurate operation of interactive media<br>• Locates correct folders for logical storing of electronic data to assist with production |
| Writing | 3.1, 4.3, 4.9, 6.5 | • Creates a range of texts incorporating specific scripting language, mark-up and standard file naming conventions |
| Oral Communication | 1.3, 1.4, 2.2, 4.8, 5.1-5.6 | • Uses clear language, questioning and listening techniques to specify and discuss interactive prototypes and final product |
| Navigate the world of work | 3.3 | • Complies with legislative responsibilities |
| Interact with | 1.3,1.4, 2.2, 4.8, | • Uses appropriate communication practices and |


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| | | |
|---|---|---|
| others | 5.1-5.6 | protocols to confirm requirements and present prototypes to a range of personnel |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.1, 3.2, 4.1-4.9, 5.1-5.6, 6.1-6.6 | • Takes responsibility for managing a range of tasks concurrently to produce an interactive prototype and final product which meets creative, production and technical requirements<br>• Applies evaluation and diagnostic tests to identify necessary adjustments<br>• Uses authoring and graphics software to create, test, evaluate and adjust interactive prototypes<br>• Identifies, saves and stores final prototypes in digital format |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUADIG401 Author interactive media | CUFDIG401A Author interactive media | Updated to meet Standards for Training Packages. Minor edits to elements and performance criteria to clarify intent. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG401 Author interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- discuss and determine requirements for an interactive media product
- use authoring software to create logical file directory structures and build a prototype of an interactive media product
- evaluate and incorporate feedback from user testing to the prototype
- use authoring software to develop a fully functional interactive media product that:
  - conforms to design and creative requirements specifications
  - meets accessibility and interoperability standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain technical requirements for integrating media assets (video, audio, animation, images) for use on a range of delivery platforms
- describe interoperability and accessibility standards used in interactive media product design
- explain the purpose and process of script validation
- outline basic health and safety requirements when working on computers and keyboards.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- design specifications


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- sample content including a range of media assets
- authoring software
- software manuals and other relevant information.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADIG502 Design digital applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to design digital applications, which may consist of one or many technologies integrated in various combinations.

It applies to individuals who work with clients to design specifications for digital applications, which are then built by other specialised team members. Digital applications may be operated in a web or mobile device environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine project requirements | 1.1 Analyse project brief to identify purpose of, and target audience for, digital applications<br>1.2 Consult with clients or relevant personnel to clarify project requirements, including project timelines<br>1.3 Identify target audience characteristics and determine how these influence design<br>1.4 Identify content and application functions and how these are |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | accessed, searched and delivered |
| 2. Research digital applications | 2.1 Research digital applications and analyse how these meet audience, function and content requirements<br>2.2 Identify issues relating to delivery platform and technical and industry standards, and determine how these may affect digital application options<br>2.3 Consult relevant personnel to confirm all digital application options are considered<br>2.4 Select applications that will meet creative, production and technical requirements |
| 3. Draft design specifications | 3.1 Design architecture of digital application to show interrelationship of various components and screens<br>3.2 Specify interactive features, functionality and navigation<br>3.3 Identify content and data displays, and specify how these will be logically structured and integrated into and/or generated in the digital application<br>3.4 Specify levels of access permissions as required<br>3.5 Specify media assets as required<br>3.6 Specify user interfaces, taking screen sizes into account<br>3.7 Specify report generation if required<br>3.8 Specify production requirements, including appropriate testing strategies<br>3.9 Produce draft design specifications and instructions for design and development teams to use |
| 4. Review and confirm design specifications | 4.1 Use a range of techniques to present draft design specifications, and discuss with client<br>4.2 Review designs against creative and technical requirements, and client and audience needs<br>4.3 Adjust designs as necessary after discussions with relevant personnel<br>4.4 Clarify ownership of intellectual property to comply with production and organisational requirements<br>4.5 Confirm, with client, acceptance of design specifications, including deliverables, milestones and timelines |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1, 2.2, 3.1-3.9, 4.4 | • Selects and applies a range of reading strategies to interpret texts |
| Writing | 3.1-3.9 | • Uses text, graphic diagrammatic and visual formats to draft and confirm specifications and instructions |
| Oral Communication | 1.2, 2.3, 4.1, 4.5 | • Participates effectively in spoken interactions using language and features appropriate to the audience<br>• Uses questioning and listening strategies to confirm project requirements and elicit relevant feedback |
| Navigate the world of work | 4.4 | • Understands and adheres to organisational and legislative requirements |
| Interact with others | 1.2, 2.3, 4.1, 4.5 | • Collaborates with others throughout all stages of the design process<br>• Selects and uses appropriate practices and protocols to communicate with a range of audiences |
| Get the work done | 1.1-1.4, 2.1-2.4, 3.1-3.6, 3.8, 3.9, 4.1-4.5 | • Takes responsibility for planning, organising and implementing tasks required to complete project, coordinating with others when required<br>• Analyses information to make decisions that affect the entire project<br>• Uses digital tools to specify architecture, navigation and content to meet project brief specifications |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUADIG502 Design digital applications | CUFDIG502A Design web environments | Updated to meet Standards for Training Packages. Title changed. Minor edits to performance criteria. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG502 Design digital applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- research digital applications and analyse how they meet audience, function and content requirements
- design specifications for digital applications that:
  - meet client and audience requirements
  - are technically feasible
  - detail all aspects of the application's permissions, search capability, architecture, content, assets, screen designs, functions, reports, production requirements and testing strategies
- present and discuss draft specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the sequence and interrelationships of stages in the process of designing digital applications
- outline issues relating to technical standards and platform functions that may impact on digital application options
- outline the impact of web standards on the design of digital applications
- describe typical formats and techniques for documenting the design of digital applications
- describe the concept of intellectual property rights and how this is managed in context of digital applications.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- project briefs on which designs can be based
- sample content.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADIG503 Design e-learning resources

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to develop the design of e-learning resources in consultation with clients.

It applies to individuals who work in education or training organisations, or in media production companies that specialise in the development of e-learning resources.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify project requirements | 1.1 Refer to project briefs to identify target learner characteristics and their impact on resource design<br>1.2 Identify content to be incorporated, generated and managed, and how content is accessed or delivered<br>1.3 Identify delivery platforms including learning management systems, and assess implications for media asset formats and content modification<br>1.4 Consult with clients to clarify project requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Research and select instructional design model | 2.1 Analyse content to establish learning outcomes and assessment strategies<br>2.2 Research a range of instructional design models and consider their suitability to meet briefs<br>2.3 Identify accessibility and technical standards that may apply for the delivery platforms<br>2.4 Identify learning styles of target audience and consider how these may impact design<br>2.5 Evaluate a range of interactive learning and assessment activities to meet learning needs of target learners<br>2.6 In consultation with relevant personnel, select the instructional design model that best meets learning needs and project requirements |
| 3. Draft design specifications | 3.1 Use selected instructional design model to design architecture of the e-learning resource<br>3.2 Design sequences and interactivity based on content and project requirements<br>3.3 Develop content templates for content experts if required<br>3.4 Specify media assets as required<br>3.5 Specify communication and collaboration tools as required<br>3.6 Specify user interface of the e-learning resource<br>3.7 Specify production requirements, including appropriate testing strategies<br>3.8 Produce design specifications and instructions for design and development teams to use |
| 4. Finalise design specifications | 4.1 Present design specifications and discuss with clients<br>4.2 Review designs against required project outcomes and target learner needs<br>4.3 Review designs against creative and technical requirements<br>4.4 Adjust designs as necessary after discussions with relevant personnel<br>4.5 Clarify ownership of intellectual property to comply with production and organisational requirements<br>4.6 Confirm with clients their acceptance of design specifications, including deliverables, milestones and timelines |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.5, 3.2-3.8, 4.2-4.5 | • Identifies and interprets relevant information including applicable legislation and organisational requirements<br>• Integrates technical and descriptive information and ideas from a range of sources<br>• Interprets project briefs to inform the process of designing e-learning resources |
| Writing | 2.1, 3.1-3.8, 4.4 | • Uses text, diagrammatic and graphic formats to draft and confirm requirements and specifications |
| Oral Communication | 1,4, 2.6, 4.1, 4.6 | • Participates effectively in spoken interactions using language and features appropriate to the audience<br>• Uses questioning and listening strategies to confirm project requirements and elicit relevant feedback |
| Navigate the world of work | 4.5 | • Understands and adheres to organisational and legislative requirements |
| Interact with others | 1,4, 2.6, 4.1, 4.6 | • Collaborates with others throughout all stages of the design process<br>• Selects and uses appropriate practices and protocols to communicate with a range of audiences |
| Get the work done | 1.1-1.3, 2.1-2.6, 3.1-3.7, 4.2-4.6 | • Adopts a methodical and logical approach to planning, organising and implementing tasks required to meet requirements<br>• Generates complex creative ideas in alignment with the design brief<br>• Takes responsibility for analysing information and making decisions to ensure designs meet all requirements<br>• Uses digital tools to assist with the design of e-learning resources |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUADIG503 Design e-learning resources | CUFDIG503A Design e-learning resources | Updated to meet Standards for Training Packages. Minor edits to performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG503 Design e-learning resources

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- research and select suitable instructional design models to meet project requirements
- design specifications for e-learning resources for delivery on different platforms that:
  - meet the project brief, including learner requirements
  - are technically feasible
  - detail all aspects of e-learning resource architecture, interactive learning and assessment activities, media assets, communication and collaboration tools, user interface production requirements and testing strategies
- present and discuss design specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list and briefly describe instructional design learning models for e-learning
- outline target learner characteristics and how these may impact on instructional design choices
- list a range of e-learning delivery platforms, and briefly describe any particular design requirements
- outline typical media assets used for e-learning
- describe common formats and techniques for documenting design of e-learning resources
- outline the impact of web standards on the design of e-learning resources
- describe the concept of intellectual property rights and how this is managed in the context of e-learning resource development.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- project briefs on which designs can be based
- sample content.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADIG504 Design games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to design technically feasible games and document production requirements.

It applies to individuals who generate and develop a game idea through to documentation of the mechanics and design. They communicate the vision for a game to the rest of the team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify project requirements | 1.1 Confirm objective and outcomes of a game proposal or brief in consultation with relevant personnel<br>1.2 Identify factors that may impact game's design<br>1.3 Clarify target audience to determine format and delivery platform of the game in discussion with relevant personnel |
| 2. Research games and generate ideas | 2.1 Identify and source a full range of genres, in consultation with relevant personnel<br>2.2 Select and play different genres as a source of inspiration, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | including traditional and state of the art games<br>2.3 Search game literature to identify various games' objectives and game theory<br>2.4 Generate a range of ideas for game designs that are technically feasible, respond to the proposal or brief, and provide creative solutions to design issues<br>2.5 Discuss ideas and creative solutions in collaboration with relevant personnel |
| 3. Select a game genre | 3.1 Identify a range of game genres with potential to meet the game brief, and present to relevant personnel for consideration<br>3.2 Select the game genre that meets the creative, technical and production requirements of proposal or brief in consultation with relevant personnel |
| 4. Draft game design document | 4.1 Propose a game concept that is original and compelling for users<br>4.2 Establish game strategy outcomes<br>4.3 Develop the structure of the game and document all elements, including style and game mechanics<br>4.4 Develop criteria to determine the scope of a prototype game sequence to be used in the development phase<br>4.5 Confirm the proposed prototype can test effectiveness of the game-play elements<br>4.6 Develop a register of game assets in consultation with relevant personnel<br>4.7 Use various presentation techniques to present a draft game design document for feedback from other team members |
| 5. Finalise game design document | 5.1 Review game design objectives based on feedback on the draft game design document<br>5.2 Discuss and confirm additional requirements or modifications to the game design with relevant personnel<br>5.3 Specify game production requirements, including appropriate testing strategies<br>5.4 Produce final game design document to reflect all additional requirements or modifications |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1- 2.4, 3.1, 3.2, 4.2-4.4, 5.1, 5.4 | • Selects and critically analyses information from a variety of sources to clarify details and inform concept development<br>• Integrates detailed information and ideas from a variety of sources |
| Writing | 1.1, 1.3, 4.1-4.4, 4.6, 4.7, 5.1, 5.4 | • Uses text, diagrammatic and visual formats to develop detailed specifications and final documentation of game design analysis |
| Oral Communication | 1.1, 1.3, 2.1, 2.5, 3.1, 3.2, 4.6, 4.7, 5.2 | • Participates effectively in spoken interactions using language and features appropriate to the audience<br>• Uses questioning and listening strategies to confirm project requirements and elicit relevant feedback |
| Numeracy | 5.3 | • Uses estimation and other assessment skills and knowledge to incorporate financial and timeline calculations into production specifications |
| Interact with others | 1.1, 1.3, 2.1, 2.5, 3.1, 3.2, 4.6, 4.7, 5.2 | • Collaborates with others throughout all stages of the design process<br>• Selects and uses appropriate practices and protocols to communicate with a range of audiences |
| Get the work done | 1.1-1.3, 2.2-2.5, 3.1, 3.2, 4.1-4.7, 5.1-5.4 | • Adopts a methodical and logical approach to planning, organising and implementing tasks required to meet requirements<br>• Generates complex creative ideas in alignment with the design brief<br>• Takes responsibility for analysing information and making decisions to ensure designs meet all requirements<br>• Uses digital tools to assist with game design |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUADIG504 Design games | CUFDIG504A Design games | Updated to meet Standards for Training Packages. Minor edits to performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG504 Design games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- research and generate ideas for games
- design games which:
  - are original and compelling for the user
  - are technically feasible
  - meet requirements of the game proposal or brief
- document all game aspects including strategy outcomes, style, mechanics and game assets
- specify a prototype game sequence that effectively tests game-play elements
- specify testing strategies
- present and discuss design specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the objectives and theories that underpin some common games
- identify and describe common traditional and digital game genres
- describe technical parameters of various platforms and their influence on game design
- explain the term 'game mechanics' in relation to game design
- list and describe strategies to test the function and operation of games
- describe formats for documenting and presenting game designs.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- game proposals or briefs on which designs can be based
- equipment and facilities for games design.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADIG507 Design digital simulations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to design digital simulations of real world environments and processes.

It applies to individuals who work closely with subject experts to develop virtual environments for fields including architecture, science and engineering, medicine, conservation and manufacturing. They may also collaborate with programmers and software authors so the simulation is technically achievable.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual Communication – Digital Content and Imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify project requirements | 1.1 Confirm objectives and outcomes of project briefs in consultation with relevant personnel<br>1.2 Confirm target audience and determine format and delivery platform of simulations in discussion with relevant personnel |
| 2. Research and plan approach | 2.1 Investigate the real world environment to be simulated, to inform algorithms, rules, laws, physical and mathematical formulas that |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | may be required<br>2.2 Evaluate designs, plans and other information relevant to the project brief that may assist in modelling the real world environment<br>2.3 Determine performance objectives, task complexity and user skill levels<br>2.4 Determine the required depth of physical and functional fidelity, taking into account production requirements<br>2.5 Research and suggest appropriate simulation authoring tools<br>2.6 Collaborate with relevant personnel and discuss ideas and creative solutions |
| 3. Draft simulation design documents | 3.1 Identify processes that determine the functional behaviour of the simulation and specify how this behaviour is to be represented by control objects<br>3.2 Define the underlying functionality in a model that specifies essential settings, states, conditions and parameters<br>3.3 Specify user interface controls that enable users to interact with simulations<br>3.4 Identify critical impacts, alerts or costs for incorrect user operation<br>3.5 Specify positive and negative feedback to user responses when interacting with simulations<br>3.6 Specify sequencing of difficulty levels, if required<br>3.7 Confirm proposed simulation is technically achievable, in consultation with relevant personnel<br>3.8 Present clear and detailed draft simulation design specifications in a format that can be used for discussion with and feedback from other team members |
| 4. Finalise simulation design documents | 4.1 Review designs against required project outcomes and performance objectives<br>4.2 Review designs against creative, technical and intellectual property requirements<br>4.3 Adjust design specifications as necessary after discussions with relevant personnel<br>4.4 Archive user interface controls for other projects |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2, 2.4, 2.5, 3.1-3.6, 4.1-4.3 | • Interprets and comprehends a range of familiar and unfamiliar technical, descriptive, and legal textual information<br>• Integrates prior knowledge with new technical research and feedback from relevant personnel |
| Writing | 2.1, 2.3, 2.4, 3.1-3.6, 3.8, 4.1-4.3 | • Documents information using correct formatting procedures, and uses appropriate, specialised vocabulary when drafting design documents<br>• Accurately incorporates modifications and user feedback in specification documentation |
| Oral Communication | 1.1, 1.2, 2.6, 3.7, 4.3 | • Participates effectively in spoken interactions using language and features appropriate to the audience<br>• Uses questioning and listening strategies to confirm project requirements and elicit relevant feedback |
| Navigate the world of work | 4.2 | • Understands legislative requirements related to intellectual property |
| Interact with others | 1.1, 1.2, 2.6, 3.7, 4.3 | • Works collaboratively with production personnel throughout all stages of project<br>• Selects and uses appropriate practices and protocols to communicate with a range of audiences |
| Get the work done | 1.1, 1.2, 2.1-2.6, 3.1-3.7, 4.1-4.4 | • Coordinates and plans tasks, taking responsibility for ensuring that project is continually assessed and evaluated to meet project requirements<br>• Generates and continually evaluates ideas for the design, ensuring design integrity is maintained<br>• Makes decisions that impact on the entire project<br>• Uses digital tools to assist with design tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUADIG507 Design | CUFDIG507A | Updated to meet | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| digital simulations | Design digital simulations | Standards for Training Packages. Minor edits to performance criteria. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADIG507 Design digital simulations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- research and generate a range of ideas for simulations that meet the project brief and target audience
- develop draft design specifications for digital simulations that are clear, detailed and technically feasible
- review and seek feedback from relevant personnel and produce final design specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe typical formats and documentation for presenting simulation designs
- outline a range of authoring tools used for digital simulations
- describe the ways in which algorithms, laws, rules and mathematical formulas can represent real world processes
- outline intellectual property rights and how these are managed in design of digital simulations.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- briefs for digital simulations on which designs can be based
- facilities and resources to develop design simulations.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUADRA201 Develop drawing skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to use a limited range of basic drawing techniques to produce fundamental drawings from simple ideas. This unit relates to drawing as an art form and differs from units that focus on drawing as a visual representation tool.

It typically applies to individuals who have developed some general design or drawing skills and who are now embarking on a career in visual arts. They have little or no experience in drawing and work under close supervision and with guidance from others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Visual communication – drawing

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare drawing resources | 1.1 Calculate and obtain type and quantity of drawing equipment, tools and materials according to own selected ideas for the work<br>1.2 Prepare equipment, tools and materials according to procedures for workplace safety, cost control and waste minimisation<br>1.3 Set up a safe work space with guidance from key people |
| 2. Use and test drawing | 2.1 View a range of drawings in different styles, and discuss with |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| techniques | key people how effects are achieved<br>2.2 Match potential techniques to ideas for own drawings with assistance from key people<br>2.3 Test a range of techniques to determine the effects they achieve through experimentation with samples, practice pieces or work in progress<br>2.4 Use selected techniques to produce fundamental drawings, considering and applying elements and principles of design<br>2.5 Clean and store equipment, tools, and materials according to specific needs of different items<br>2.6 Handle equipment, tools and materials safely and minimise waste throughout all processes |
| 3. Review work to develop skills | 3.1 Review own drawings and note areas for future improvement<br>3.2 Seek and consider feedback from key people to identify areas for improvement<br>3.3 Review different opportunities to build own skills and select suitable options |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.3 | • Plans a learning process to build own skills |
| Reading | 1.2 | • Interprets detailed information from familiar procedural documents to determine production and safety requirements |
| Oral Communication | 1.3, 2.1, 2.2, 3.2 | • Clearly explains ideas for designs and techniques using relevant industry language<br>• Uses questioning and active listening techniques to gain information and feedback and confirm understanding |
| Numeracy | 1.1, 1.3, 2.4 | • Uses basic calculations to determine quantities of materials, measure dimensions of work space and drawings |


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| | | |
|---|---|---|
| Navigate the world of work | 1.2, 1.3, 2.4, 2.6 | • Follows defined procedures and legislative requirements, understands boundaries of own work and skill, and seeks clarification and guidance on all issues |
| Interact with others | 1.3, 2.1, 2.2, 3.2 | • Seeks guidance and cooperates with instructions and advice from others to achieve best outcomes for own creative work |
| Get the work done | 1.1-1.3, 2.1-2.4 | • Organises all processes to set up work space, test techniques and produce creative work with close guidance from others<br>• Makes routine decisions using procedures to guide activities<br>• Makes decisions about appropriate techniques by evaluating and testing a limited range of known options with assistance from others<br>• Resolves problems with technique through trial, error and practice |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUADRA201 Develop drawing skills | CUVDRA201A Develop drawing skills | Updated to meet Standards for Training Packages and clarify intent. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUADRA201 Develop drawing skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- produce multiple fundamental drawings where the materials and techniques support own ideas for work
- document a basic plan to build own skills, outlining own selected skill development options.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the general features of major styles of drawing and the work of key practitioners relevant to individual area of interest
- outline, for the elements and principles of design, the fundamental characteristics, primary interrelationships and use in fundamental drawings
- outline, for a range of equipment and tools used to produce drawings, key physical features and uses, cleaning techniques and storage requirements
- outline the general features and use of a basic range of materials and techniques used to produce fundamental drawings
- outline typical work space requirements for producing fundamental drawings including ways of organising space and equipment for efficient work operation
- outline procedures for working safely with drawing materials, tools and equipment.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- equipment, tools and materials used to produce drawings
- relevant information sources.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUAPHI504 Employ specialised imaging technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to investigate specialised imaging technologies and their application in photo imaging practice.

It applies to individuals who create innovative images using specialised imaging technologies. They may be engaged in scientific, forensic, geographical, exploratory and other industry areas. At this level work is usually carried out independently, with supervision or guidance available as required.

No licensing, legislative or certification conditions apply to this unit at the time of publication.

## Unit Sector

Visual communication – photo imaging

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research range of specialised imaging technologies | 1.1 Investigate historic, contemporary and emerging specialised imaging technologies using reliable information sources<br>1.2 Examine relevant photo imaging discipline, subject matter and themes, and identify their specialist imaging technologies<br>1.3 Analyse connection between imaging technology and visual representation, attributes and opportunities of an image's subject matter |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Evaluate specialised imaging technologies and their corresponding imaging workflow |
| 2. Test and evaluate attributes of specialised imaging technologies | 2.1 Arrange access to specialised imaging technologies in cooperation with imaging specialists and suppliers, where applicable<br>2.2 Use specialised imaging technologies following work health and safety procedures<br>2.3 Apply specialised imaging techniques and workflow to create test images<br>2.4 Review own performance in creation of test images |
| 3. Create body of work using specialised imaging technologies | 3.1 Select relevant specialised imaging technology to create innovative body of work with specific subject matter or theme<br>3.2 Develop concepts to guide creative vision using specialised imaging technology and techniques<br>3.3 Review and adapt imaging techniques to ensure consistency of creative vision across body of work<br>3.4 Plan, prepare and organise body of work for presentation using appropriate technology and space<br>3.5 Document work processes using specialised imaging technology and archive imaging products according to industry standards<br>3.6 Evaluate personal performance in creation of body of work and identify concepts for further research |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.2 | • Interprets and evaluates complex technical information and regulatory safety requirements to inform work practice |
| Writing | 1.1, 2.1, 3.4, 3.5 | • Uses clear language and technical terminology to complete comprehensive workplace documentation |
| Oral Communication | 1.1, 2.1 | • Elicits information from industry sources using effective listening and open questioning techniques |


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| | | |
|---|---|---|
| Navigate the world of work | 2.2, 3.5 | • Meets workplace expectations to follow work health and safety procedures and industry standards when undertaking and archiving work |
| Get the work done | 1.2-1.4, 2.1, 2.3, 2.4, 3.1-3.4, 3.6 | • Plans, organises and undertakes tasks required to familiarise self with imaging technologies<br>• Makes informed decisions about techniques, processes and presentation requirements<br>• Evaluates outcomes of decisions and identifies opportunities for further research<br>• Investigates and analyses the application, operation and potential of specialised technologies in photo imaging contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUAPHI504 Employ specialised imaging technologies | CUVPHI519A Investigate and exploit innovative imaging options | Updated to meet Standards for Training Packages. Title changed. Minor edits to elements and performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAPHI504 Employ specialised imaging technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- create a body of photo images experimenting with, and applying, specialised imaging technologies around a specific theme or subject matter
- document specialised imaging processes for use in future contexts
- evaluate own performance for improvement.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe a range of specialised imaging technologies, their attributes and their applications
- outline the history of the development of photo imaging technologies
- explain the opportunities offered by imaging technology to represent the subject matter in different ways
- explain the health and safety considerations associated with imaging technology.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- specialised image technologies
- sources of information on historical and contemporary imaging technology and techniques.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUAPOS201 Perform basic vision and sound editing

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to perform basic editing functions for screen productions.

It applies to individuals responsible for digitising, cutting and logging pre-recorded image and audio content under the direction of an experienced editor. Within clearly defined parameters, they also edit content using the basic functions of editing software.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and entertainment production – post-production

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare source materials for edit | 1.1 Clarify technical and creative requirements for online editing in consultation with production personnel<br>1.2 Obtain and label source materials<br>1.3 Organise transfer of source materials to appropriate medium as required<br>1.4 Check sufficient storage and memory is available to meet content resolution requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Assess source materials for technical and creative quality and arrange for remedial action where problems are identified<br>1.6 Capture content to specified formats and burn time code where applicable, checking format is compatible with available software and hardware<br>1.7 Align, synchronise and organise uncut images and sound in preparation for evaluation and editing<br>1.8 In consultation with relevant production personnel, finalise list of required shots and the method for logging them |
| 2. Prepare for editing | 2.1 Check editing facilities are operational and arrange for faults or problems to be resolved according to enterprise procedures<br>2.2 Load source materials onto appropriate editing facility, checking correct image and sound are ready for use and that images and sound are synchronised or aligned accurately<br>2.3 Identify and catalogue required shots and sequences from source materials in the agreed way<br>2.4 Log selected edits with reference to time codes and shot descriptions according to enterprise procedures<br>2.5 Use a batch digitise list to digitise selected sequences according to relevant documentation and consistent with technical and creative requirements<br>2.6 Create edit decision lists (EDLs) according to instructions from relevant production personnel<br>2.7 Organise and save selected materials according to overall editing requirements<br>2.8 Finalise logging sheets and submit EDLs to relevant production personnel by the agreed deadline |
| 3. Perform basic edits | 3.1 Use software functions to assemble sequences according to EDLs<br>3.2 Observe health and safety procedures when working at computers for long periods of time<br>3.3 Review edited sequences to evaluate quality and content and to identify problems<br>3.4 Manipulate the editing software to solve identified problems and seek expert advice if required<br>3.5 Submit sequences to relevant production personnel for feedback by agreed deadlines |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 3.6 Amend sequences as required and save in appropriate format<br>3.7 Check source materials and back-up copies are stored securely and labelled correctly<br>3.8 Complete required documentation, noting variations and issues from original instructions<br>3.9 Leave workstation in original or improved condition |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.4-2.6, 2.8, 3.2, 3.5, | • Interprets and reviews relevant visual and textual material to determine job requirements |
| Writing | 1.2, 1.8, 2.1, 2.4, 2.5, 2.7, 2.9, 3.6, 3.7 | • Uses clear and specialised language to record accurate identification information and report faults<br>• Produces lists, logs, and catalogue information, and updates records to reflect changes in requirements |
| Oral Communication | 1.1, 1.8, 2.1, 3.3, 3.4 | • Uses clear and relevant language to provide information<br>• Obtains information and instructions by listening and questioning |
| Numeracy | 1.6, 2.5 | • Applies mathematical techniques to implement and record time codes and timings |
| Navigate the world of work | 2.1, 2.5, 3.4 | • Accepts responsibility for tasks within the boundaries of own role and seeks assistance as required<br>• Ensures workplace protocols and enterprise procedures are followed in the planning and completion of editing tasks |
| Interact with others | 1.1, 1.8, 2.1, 3.3, 3.4, | • Works in collaboration with others to complete editing tasks<br>• Follows accepted communication methods and practices when receiving instructions, seeking advice and reporting information |
| Get the work done | 1.2-1.7, 2.1-2.4, 2.6-2.9, 3.1-3.3, 3.5, | • Organises and implements routine tasks making limited decisions about sequencing, timing and |


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| | | |
|---|---|---|
| | 3.6, 3.8, 3.9 | required outcomes and seeks assistance when required<br>• Prepares source materials in logical steps, making routine decisions about storage capability, compatibility and quality standards<br>• Uses main features and functions of digital editing tools and equipment to synchronise sound and vision, catalogue, log and digitise sequences, and saves material according to all requirements<br>• Uses software functions to assemble sequences, resolve technical problems, make required changes and save material appropriately within time constraints |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUAPOS201 Perform basic vision and sound editing | CUFPOS201A Perform basic vision and sound editing | Updated to meet Standards for Training Packages. Minor edits to elements and performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAPOS201 Perform basic vision and sound editing

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- transfer and digitise video content
- prepare vision and sound content segments for editing
- log single images, audio grabs and basic sequences according to enterprise procedures
- edit content using basic functions of editing software, within clearly defined parameters
- take direction and respond to feedback from a supervising editor
- follow procedures for completing workplace documentation
- meet work deadlines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline basic vision and sound editing conventions and techniques
- explain roles of post-production personnel
- outline basic features of digital vision and sound editing software
- describe health and safety procedures that apply to using computers and keyboards.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- screen content that requires editing
- post-production facilities


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- editing software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUAPOS401 Edit screen content for fast turnaround

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to use non-linear digital facilities to edit screen content for fast turnaround.

It applies to individuals with a reasonable level of experience who are involved in editing for daily programs such as television news and current affairs. At times they work on more complex programs of a formatted or routine nature, or on the editing of daily rushes for feature films.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and entertainment production – post-production

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for edit | 1.1 Clarify editing requirements in consultation with production personnel and with reference to documentation as required<br>1.2 Check operation of editing equipment and software<br>1.3 Identify and prepare source materials for off-line and online editing |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Assess materials to be edited against required technical and creative criteria in consultation with relevant production personnel<br>1.5 Agree on replacement material or editing approach to overcome technical problems identified with source material<br>1.6 Review source materials and visualise the look of the final edited sequences |
| 2. Commence editing process | 2.1 Digitise and transfer materials to suitable format, checking compatibility with editing equipment and monitoring capture for sound and image quality<br>2.2 If time allows, create and edit decision list noting in and out points for each edit<br>2.3 Maintain accurate documentation of editing instructions for use in all stages of post-production as required<br>2.4 Prioritise and select materials in terms of their relevance to production requirements<br>2.5 Arrange and present selected material to retain the intended meaning of words and images<br>2.6 Consider how other materials could be used to clarify and enhance final edit |
| 3. Assemble vision and sound | 3.1 Check technical and creative criteria with relevant production personnel to ensure integrity of edit<br>3.2 Assemble content in a way that produces coherent images and sound according to standard editing conventions<br>3.3 Confirm assembled materials meet duration requirements, as well as technical and creative criteria for transmission<br>3.4 Insert transitions, special effects and additional materials as required<br>3.5 Make appropriate compromises between content and quality to meet time restrictions |
| 4. Finalise edits | 4.1 Review assembled online or off-line edits with relevant production personnel<br>4.2 Implement changes as required and finalise edit to meet deadlines<br>4.3 Complete necessary documentation and archive source materials according to enterprise procedures<br>4.4 Report problems encountered with completing edits to relevant personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.5 Provide information required for successful transmission of edited material<br>4.6 Evaluate own performance against technical and creative criteria and discuss with colleagues where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.6, 3.1 | • Interprets production documentation, extracts and analyses relevant information to establish job requirements |
| Writing | 2.2, 2.3, 4.2, 4.3 | • Uses clear language and terminology to record lists, relevant information and report faults<br>• Completes documentation using required formats, terminology and conventions specific to industry and enterprise procedures |
| Oral Communication | 1.1, 1.4, 3.1, 3.6, 4.1, 4.4 | • Uses clear, specific language to provide information, discuss requirements and solutions<br>• Uses listening and questioning techniques to obtain and confirm information |
| Navigate the world of work | 3.3, 4.1, 4.3, 4.4 | • Meets expectations associated with own role and responsibilities for planning and completing work within time constraints and in compliance with enterprise procedures |
| Interact with others | 1.1, 1.4, 3.1, 3.6, 4.1, 4.4 | • Collaborates with others to achieve joint outcomes<br>• Selects and uses appropriate communication methods and practices to clarify information, engage in discussions and elicit feedback from others |
| Get the work done | 1.2-1.4, 2.1- 2.6, 3.2-3.6, 4.2, 4.3, 4.5, 4.6 | • Plans and sequences content preparation and editing tasks to meet creative and technical criteria and production requirements<br>• Makes decisions about sequencing and the use of other material to preserve and enhance meaning<br>• Uses a range of features and functions of digital editing tools and equipment to assemble sound and vision components |


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| | | |
|---|---|---|
| | | • Makes considered editing decisions under some pressure and evaluates their effectiveness in meeting requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUAPOS401 Edit screen content for fast turnaround | CUFPOS401A Edit screen content for fast turnaround | Updated to meet Standards for Training Packages.<br>Minor edits to performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAPOS401 Edit screen content for fast turnaround

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- review and prepare materials to be edited
- select and note in and out points of sequences to be used in edits
- produce final edits that bring vision and sound content together in line with production requirements and deadlines
- follow procedures for completing workplace documentation
- work collaboratively with production personnel to produce edited sequences.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline vision and sound editing techniques
- describe features of industry-standard editing software and equipment
- outline roles and responsibilities of post-production personnel
- describe creative and technical elements of screen content that typically need to be edited within short timeframes
- identify typical problems with editing vision and sound content for fast turnaround, and briefly describe solutions.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- vision and sound content to be edited


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- editing software and equipment
- production documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUAPOS402 Manage media assets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to implement systems and processes to manage media assets for screen productions and projects.

It applies to individuals working in large enterprises on projects or productions that require a wide range of media assets. They work directly with the creators of audio, video and graphic assets to ensure the asset management system accommodates their needs. They set up conventions for file naming, sourcing, sorting and storing formal documents and media assets. Though reporting to a producer or manager, they work with a fair degree of autonomy.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and entertainment production – post-production

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish procedures for managing content and outputs | 1.1 Confirm media asset management requirements with relevant personnel<br>1.2 Set up file naming system for projects based on standard conventions and protocols<br>1.3 Source and review storage repository and back-up systems appropriate for projects |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Set up processes to record information required for tracking formal documents and media assets<br>1.5 Establish conventions for recording progress and locations of media assets<br>1.6 Develop strategies for tracking and recording media assets<br>1.7 Brief team members on the media asset management system, including the process for advising personnel of problems encountered as the system is implemented |
| 2. Record documentation and media assets | 2.1 Document sources of media assets according to enterprise procedures<br>2.2 Document progress and details of a range of project outputs<br>2.3 Maintain records of technical information on work in progress<br>2.4 Maintain copyright and permissions information<br>2.5 Track media assets and record information according to established system<br>2.6 Maintain version control and identify status of interim products, prototypes and other media assets<br>2.7 Respond to and resolve problems encountered as the system is implemented, seeking specialist assistance as required |
| 3. Finalise projects | 3.1 Confirm procedures and schedule for signing-off projects with relevant personnel<br>3.2 Determine requirements for archiving<br>3.3 File and index formal documents and scripts according to agreed project or enterprise procedures and timelines<br>3.4 Archive media assets in established repository system in line with industry practice<br>3.5 Check relevant personnel have ongoing access to formal documents and media assets developed for projects<br>3.6 Review effectiveness of the media asset management system and note areas for future improvement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 2.1, 2.3-2.6, 3.3, 3.4, 3.6 | • Interprets texts of varying complexity and extracts information to determine work requirements |
| Writing | 1.2, 1.4-1.6, 2.1-2.6, 3.3, 3.4, 3.6 | • Prepares detailed, logically sequenced text to describe procedures and processes required to identify, record, track and file information<br>• Maintains and updates documentation |
| Oral Communication | 1.1, 1.7, 2.7, 3.1 | • Uses language to provide information and instructions appropriate to audience and environment<br>• Uses careful listening and questioning techniques to obtain and confirm information |
| Navigate the world of work | 2.1, 3.1, 3.3 | • Meets expectations associated with own role, taking responsibility for planning and implementing a media asset management system in line with enterprise processes and procedures and recognised industry practice |
| Interact with others | 1.1, 1.7, 2.7, 3.1 | • Collaborates with others to achieve joint outcomes<br>• Selects and uses appropriate communication methods and practices to clarify requirements and provide comprehensive information and support to others about operation of the media asset management system |
| Get the work done | 1.1-1.6, 2.3, 2.4, 2.6, 2.7, 3.1-3.6 | • Plans, organises and implements systematic procedures and processes to manage media assets and handles relevant communication<br>• Selects storage and back-up system that meets requirements<br>• Uses system to organise and maintain required information, and tracks project assets to identify and resolve operational problems<br>• Uses digital technologies and systems to organise, enter, update, and track information and assets |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUAPOS402 Manage media assets | CUFPOS402A Manage media assets | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | Training Packages.<br>Minor edits to elements and performance criteria. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAPOS402 Manage media assets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- develop processes and systems for the organisation and filing of formal documents and media assets
- use information tracking and repository systems to meet project requirements
- produce and accurately update records
- archive assets from completed projects with suitable ongoing access conditions
- provide clear directions to users of the processes and systems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline roles and responsibilities of personnel involved in creating and managing media assets for screen and media projects
- explain the relationship between creative aspects of screen and media projects and the process of managing media assets
- identify typical problems with implementing media asset management systems, and briefly describe solutions
- explain the requirements for maintaining copyright and permissions requirements
- describe features of file and resource repository systems.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- file and resource management systems


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- media assets.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUAPPM407 Create storyboards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to create and develop storyboards for a broad range of digital content, including video, film, animation and interactive media.

It applies to individuals who break down content, stories or scripts into discrete elements and visualise creative concepts in collaboration with a creative production team. Storyboard artists, designers, producers and information architects can create storyboards, depending on the type and scale of production. In the film and television industry, people creating storyboards work closely with directors.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and Entertainment Production – Production Planning and Management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan storyboards | 1.1 Clarify storyboard requirements for productions with reference to scripts and stories, and in consultation with relevant personnel<br>1.2 Identify factors that affect type of storyboard to be created<br>1.3 Contribute ideas in pre-production meetings to help refine storyboard requirements<br>1.4 Research and select suitable amount of storyboard tools for a |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | given purpose<br>1.5 Obtain sign-off, from relevant personnel, on the type of storyboard to be created |
| 2. Draft storyboards | 2.1 Break down content, scripts and stories into frames using storyboard techniques and appropriate tools, and methods in line with organisational and work health and safety (WHS) procedures<br>2.2 Specify storyboard elements for each frame, reflecting creative concepts<br>2.3 Specify the logical linear or non-linear frame sequence, showing the connection between each frame<br>2.4 Provide descriptions for each frame<br>2.5 Seek feedback, and assistance as required, on work in progress from relevant personnel, and incorporate ideas and feedback as appropriate<br>2.6 Check draft storyboards are clear and legible and show sufficient detail for production teams to use |
| 3. Finalise storyboards | 3.1 Present draft storyboards to relevant personnel for discussion and feedback<br>3.2 Refine storyboards as required to incorporate feedback<br>3.3 Produce final storyboards that present accurate visual interpretations of scripts, stories or text, and meet agreed specifications<br>3.4 Make back-up copies of storyboards as required according to organisational procedures<br>3.5 Submit storyboards to relevant personnel by agreed deadlines<br>3.6 Review the process of creating storyboards and note areas for future improvement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 3.4 | • Interprets a broad range of information in a variety of forms and uses the knowledge gained to determine specifications and key action in script sequence, and to contribute to the development of ideas for storyboards<br>• Analyses and contrasts information to select that which informs own work |
| Writing | 2.1, 2.2, 2.4, 2.6 | • Records detail of research and consultation outcomes, drawing on sufficient vocabulary and grammar to convey ideas effectively<br>• Creates legible and clear descriptions to convey information and requirements in sequential order |
| Oral Communication | 1.1, 1.3, 2.5, 3.1 | • Presents explanation of own ideas to others, and discusses ideas and solutions, choosing language appropriate to those taking part in the discussion<br>• Facilitates and participates in potentially abstract discussions, using listening and questioning skills to elicit participant views |
| Navigate the world of work | 3.3-3.5 | • Meets expectations associated with own role and accepts responsibility for storyboard production to specifications in compliance with organisational procedures and legislative requirements |
| Interact with others | 1.1-1.3, 1.5, 2.5, 3.1 | • Collaborates effectively with relevant personnel to achieve understanding and realise joint outcomes<br>• Selects and uses appropriate communication methods and practices to present storyboards, engage in discussions and elicit feedback |
| Get the work done | 1.2, 1.4, 2.1-2.3, 2.6, 3.2-3.4, 3.6 | • Plans, sequences and prioritises storyboard tasks with awareness of how they contribute to production goals<br>• Uses analytical processes to make decisions directly related to task<br>• Uses feedback to inform refinement and identifies opportunities to improve storyboard processes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUAPPM407 Create storyboards | CUFPPM404A Create storyboards | Updated to meet Standards for Training Packages. Minor edits to | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | performance criteria. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUAPPM407 Create storyboards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- interpret scripts and specifications
- visualise creative concepts using storyboard techniques and appropriate tools and methods
- produce clear and logical storyboards that break down content, stories and scripts into discrete elements and meet specified requirements
- present storyboards to others for discussion or implementation, and adjust as required in response to feedback.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe roles and responsibilities of different members of the creative team, and how they contribute to the process of visualising and interpreting creative concepts into storyboards
- list and describe typical storyboard tools
- explain the components of storyboards including frames, elements and descriptions
- outline health and safety procedures that apply to creating storyboards and working for periods of time on computers.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- scripts, stories or texts to serve as the basis for creating storyboards
- storyboard and visualising tools


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- different types of productions requiring storyboards

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUASOU202 Perform basic sound editing

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required for basic digital sound editing.

It applies to individuals working under supervision who are responsible for preparing, assembling and digitally editing relatively simple sound sequences for media content.

Individuals are expected to contribute to creative outcomes, including selection and acquisition of sound materials.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and Entertainment Production – Audio/Sound

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for editing sound | 1.1 Clarify production requirements, including creative and technical objectives in consultation with relevant production personnel<br>1.2 Obtain, label and securely store audio source materials<br>1.3 Check editing hardware has sufficient capacity to handle digitising and editing processes<br>1.4 Check editing software is suited to technical requirements and enterprise practices |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Organise additional equipment to minimise interruptions during editing, if required<br>1.6 Adopt safe ergonomic practices when using screens and keyboards for long periods of time |
| 2. Assemble sequences for editing | 2.1 Digitise content in a compatible format for specified platform<br>2.2 Monitor and optimise quality of digital output and arrange to fix problems where necessary<br>2.3 Identify sound edit positions and document appropriately<br>2.4 Log and assess sound sequences and create and save digital back-up copies<br>2.5 Use safe listening procedures to evaluate and edit audio content to meet technical and creative objectives |
| 3. Edit sound sequences | 3.1 Edit audio content and document details of each edited sound sequence according to production requirements<br>3.2 Generate an appropriate track list to facilitate sound mixing processes<br>3.3 Chart positions and durations of sound sequences, noting requirements for transitions where applicable<br>3.4 Apply audio effects and enhancements to maximise creative outcomes as required<br>*3.5* Use editing software to produce sequences and resolve identified problems<br>3.6 Seek feedback on edits from relevant production personnel and refine as required<br>3.7 Submit final edits by agreed deadline in accordance with enterprise procedures |
| 4. Finalise sound edits | 4.1 Archive and document edited audio files following enterprise procedures<br>4.2 Report on editing equipment requiring maintenance if required and leave workstation in original or improved condition<br>4.3 Participate in post-production debriefing sessions as required<br>4.4 Seek feedback from colleagues and evaluate own creative and technical performance for improvement |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.3 | • Interprets textual information to determine job requirements |
| Writing | 1.2, 2.4, 3.1-3.3, 4.1 | • Records accurate and detailed information in workplace documentation using simple vocabulary and industry terminology |
| Oral Communication | 1.1, 3.6, 4.2, 4.3, 4.4 | • Uses clear and relevant language to gather and provide information<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.6, 2.4, 3.7, 4.1, 4.2, | • Complies with enterprise procedures and production requirements in preparation and completion of editing tasks to defined deadlines |
| Interact with others | 1.1, 3.6, 4.2, 4.3, 4.4 | • Follows accepted communication methods and practices when discussing task requirements and seeking feedback on task progress<br>• Participates in debrief with colleagues to receive feedback on own performance |
| Get the work done | 1.2-1.5, 2.1-2.5, 3.1, 3.2, 3.4-3.6, 4.4 | • Plans and implements routine tasks and workload in a methodical sequence with input from others<br>• Makes routine decisions about source materials, equipment capacity and audio formats, and monitors output for problems<br>• Determines the most effective editing techniques for creative impact, and manipulates software to resolve problems<br>• Uses digital tools to prepare sound components, and edit and refine sequences to achieve creative and technical expectations of the production |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUASOU202 Perform | CUFSOU204A | Updated to meet | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| basic sound editing | Perform basic sound editing | Standards for Training Packages. Minor edits to performance criteria. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUASOU202 Perform basic sound editing

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare and edit audio content to meet creative and technical production requirements
- use editing software and equipment proficiently, manipulating and applying effects where required
- digitise audio content in compatible formats
- assess and optimise quality of sound sequences
- accurately mark, log, document and archive edited sequences
- seek feedback from others to improve own technical and creative performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe a range of digital formats compatible with various editing processes, platforms and equipment
- outline procedures to log and document edited sequences
- outline typical challenges that arise collecting and organising content for broadcast and publication, and how to handle these
- identify characteristics of sound that can be manipulated to achieve high quality output
- outline work health and safety requirements for working with sound.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:


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- audio editing software and equipment
- manuals and instructions to support software and equipment
- audio content.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUASOU304 Prepare audio assets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare audio assets for inclusion in broadcasting, games and interactive media.

It applies to individuals who prepare and package audio content into formats appropriate for various media distribution channels and interactive products.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and Entertainment Production – Audio/Sound

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify audio assets | 1.1 Obtain analogue or digital sources of audio and identify the source file formats<br>1.2 Clarify output purpose, destination and platform<br>1.3 Discuss with relevant personnel the required output file format and audio codecs for specified bandwidths<br>1.4 Discuss with relevant personnel the appropriate audio encoding software |
| 2. Prepare audio assets | 2.1 Open appropriate audio encoding software and load audio file |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Eliminate or treat defects on sound recordings<br>2.3 Equalise sound output levels where necessary<br>2.4 Check duration and quality of audio sequences meet production requirements, and adjust if necessary<br>2.5 Determine and apply appropriate audio codecs<br>2.6 Batch optimise audio files where possible<br>2.7 Save files in appropriate output file format using standard industry or enterprise naming conventions<br>2.8 Follow safe ergonomic practices when using screens and keyboards for long periods of time |
| 3. Package audio assets | 3.1 Assign metadata tags if required<br>3.2 Group files logically in folder system using standard industry or enterprise naming conventions<br>3.3 Archive and store in share drive or repository for production team access |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.4 | • Interprets information to determine standards and job requirements |
| Writing | 2.7, 3.1, 3.2 | • Uses clear language and terminology to identify and group files |
| Oral Communication | 1.3, 1.4 | • Uses clear language to contribute information<br>• Obtains information by listening and questioning |
| Numeracy | 2.4 | • Uses basic calculations to measure time |
| Navigate the world of work | 2.7, 2.8, 3.2, 3.3 | • Accepts responsibility for tasks within boundaries of own role<br>• Meets organisational expectations in performance of task |
| Interact with | 1.3, 1.4 | • Follows accepted communication methods and |


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| | | |
|---|---|---|
| others | | practices in discussions with project team members |
| Get the work done | 1.1, 1.2, 2.1-2.7, 3.2 | • Makes decisions about audio asset requirements with guidance from others<br>• Uses digital tools to prepare, refine and package audio assets that meet interactive media requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUASOU304 Prepare audio assets | CUFSOU301A Prepare audio assets | Updated to meet Standards for Training Packages.<br>Minor edits to performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUASOU304 Prepare audio assets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare audio content for inclusion in interactive media products and media distribution channels
- use editing software to treat, equalise and clip sound sequences to meet technical standards
- use audio encoding and editing software
- complete file naming and storage according to industry or enterprise conventions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the need for audio file compression in media distribution channels and interactive media products
- describe how codecs work to optimise audio outputs and identify appropriate codecs for various platform destinations
- explain techniques to achieve audio equalisation
- explain file compression
- outline procedures for naming and tagging audio files following standard enterprise or industry conventions
- outline work health and safety requirements for working with sound.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:


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- audio encoding and editing software and equipment
- manuals and instructions that support encoding and editing software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUASOU307 Record and mix a basic music demo

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to plan, record and mix a basic music demonstration (demo).

It applies to individuals who work collaboratively with performers to produce basic music recordings that are intended for limited circulation or reference purposes, rather than general public release.

No licensing, legislative or certification requirements apply to this unit at the time of publication

## Unit Sector

Media and entertainment production – audio/sound

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify music demo requirements | 1.1 Confirm the purpose of the music demo in consultation with relevant people<br>1.2 Contribute to the development of an appropriate recording plan<br>1.3 Agree on the method of, and format for, final recording |
| 2. Record performers | 2.1 Position performers, instruments and equipment for optimum sound quality<br>2.2 Check that equipment is installed and aligned correctly |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Confirm that microphones are operational at all times<br>2.4 Route test signals to the correct signal path and check that level of test signal is correct<br>2.5 Create a headphone mix for performers<br>2.6 Capture sound sources according to the agreed recording method |
| 3. Mix sound sources | 3.1 Mix and balance sound sources to achieve required effect<br>3.2 Produce accurate transitions between sounds to achieve required effect<br>3.3 Apply effects and signal processing as required<br>3.4 Monitor levels according to safe work practices<br>3.5 Assess the quality of each recorded track, and evaluate overall mix against the purpose of the music demo<br>3.6 Confirm that the level of the mix is within technical limits and the required dynamic range |
| 4. Finalise music demo | 4.1 Assess mix on speakers that are appropriate to the end use of the music demo<br>4.2 Listen to overall mix with relevant people, and agree on any necessary adjustments<br>4.3 Produce a master that incorporates any adjustments and a backup copy in the agreed format<br>4.4 Complete recording documentation as required<br>4.5 Clean and restore recording location to pre-use condition |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 4.4 | • Comprehends textual information in workplace documents |
| Writing | 1.2, 4.4 | • Uses relevant language to complete workplace documents and forms |


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| | | |
|---|---|---|
| Oral Communication | 1.1-1.3, 3.5, 4.2 | • Uses specific and relevant language to clearly articulate recording issues<br>• Uses listening techniques to clarify that quality of mix meets requirements |
| Navigate the world of work | 3.4, 4.5 | • Follows safety and organisational requirements |
| Interact with others | 1.1-1.3, 4.2 | • Collaborates with others to achieve results |
| Get the work done | 1.1-1.3, 2.1, 2.4, 3.1, 3.2, 3.5, 3.6, 4.1, 4.4, 4.5 | • Plans, organises and completes work according to requirements<br>• Monitors and assesses quality of output to identify problems and decide on action required |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| CUASOU307 Record and mix a basic music demo | CUSSOU302A Record and mix a basic music demo | Updated to meet Standards for Training Packages.<br>Minor edits to clarify intent. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUASOU307 Record and mix a basic music demo

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- collaborate with others to prepare basic recording plans
- record, mix and finalise at least two basic music demos according to requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list and briefly describe the components of a basic recording plan
- describe the different types of equipment used to produce a music demo
- explain the issues and challenges that typically arise when recording and mixing a basic music demo, and how to address them
- outline the safe work practices that relate to the use of sound recording and mixing equipment.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- performers requiring a basic music demo
- recording location
- sound recording and mixing equipment.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUASOU407 Edit sound

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to edit sound material to meet production requirements. This involves assessing the quality of source materials, preparing source materials for sound editing, making technically accurate sound edits, and applying sound effects to enhance the final product.

It applies to individuals who work as part of a production team to edit sound material for a range of productions. It also applies to individuals working in film and sound archives. Individuals work with minimal supervision and guidance, and may supervise others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and entertainment production – audio/sound

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for sound editing | 1.1 Discuss production requirements and procedures with relevant people<br>1.2 Confirm necessary copyright releases have been obtained<br>1.3 Consider impact of using different release sound formats<br>1.4 Confirm sound editing software and equipment is operational |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and appropriate for production requirements<br>1.5 Prepare team work plan as required, and brief relevant people accordingly<br>1.6 Obtain original or copies of sound sources, and assess their quality against production requirements<br>1.7 Advise relevant people if sound sources do not meet production requirements, and propose options to resolve issues as required<br>1.8 Anticipate problems that may arise during sound editing, and plan accordingly |
| 2. Edit complex sound sequences | 2.1 Confirm format of sound sources is compatible with sound editing software and equipment<br>2.2 Follow work health and safety (WHS) procedures, and use safe work practices when using sound editing software and equipment<br>2.3 Listen critically to sound sources to determine extent and range of required edits<br>2.4 Use sound editing software and equipment to achieve technical and creative production outcomes, and to resolve identified problems<br>2.5 Collaborate with relevant people to meet production requirements |
| 3. Create overall sound context | 3.1 Determine purpose for which sound is being used in production<br>3.2 Select or produce appropriate sound effects that enhance the purpose, genre and technical/creative outcomes of the production<br>3.3 Incorporate sound effects and elements to meet creative and production requirements |
| 4. Finalise editing operations | 4.1 Listen to final sound mix with relevant people, and make adjustments as necessary<br>4.2 Save final files in correct format<br>4.3 Conduct quality check of final sound mix according to production requirements and enterprise procedures<br>4.4 Archive edited files, and complete relevant documentation according to production requirements and enterprise procedures<br>4.5 Confirm work environment is cleaned after use and restored to pre-editing condition<br>4.6 Collaborate with relevant people to organise a sound effect library for future productions |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.7 Provide feedback to production team members as required<br>4.8 Evaluate own performance and note areas for improvement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.8 | • Interprets textual information and applies the knowledge that has been gained to evaluate methodologies and elements according to production requirements |
| Writing | 1.8 | • Prepares specific information that conveys an understanding of outcomes and alternatives, and uses terminology appropriate to present to relevant personnel |
| Oral Communication | 1.1, 1.5, 1.7, 2.3, 2.5, 4.1 | • Uses industry appropriate language and chooses appropriate strategies to establish clear directions<br>• Derives meaning from a range of audio sources to inform work requirements |
| Navigate the world of work | 1.2, 1.3, 2.2, 4.2-4.5 | • Follows required safety procedures<br>• Identifies, confirms and applies copyright requirements relevant to role<br>• Follows organisational protocols and procedures to achieve work outcomes |
| Interact with others | 1.1, 1.5, 1.7, 2.5, 4.1, 4.6, 4.7 | • Collaborates with others to achieve joint production outcomes |
| Get the work done | 1.1-1.8, 2.1-2.5, 3.1-3.3, 4.1-4.5 | • Plans and prioritises a range of complex tasks, including contingencies to achieve goals efficiently<br>• Uses innovative techniques to organise work and support the creative process<br>• Provides feedback and evaluates options to determine solutions and improvements<br>• Uses problem-solving skills to anticipate and plan for issues<br>• Uses digital equipment and software to manage and backup files |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUASOU407 Edit sound | CUSSOU403A Perform advanced sound editing | Updated to meet Standards for Training Packages.<br>Minor edits to performance criteria to clarify intent. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUASOU407 Edit sound

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- edit sound material and create final mix for productions
- incorporate appropriate sound effects into final mix
- work collaboratively as part of a production team within set deadlines
- use the features of a range of industry current sound editing software and equipment in line with production requirements and industry standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the different purposes for which sound is used in productions
- explain the copyright implications that relate to sound editing
- explain the main principles and techniques of sound editing
- explain the issues and challenges that typically arise when editing sound material, and how to address them
- explain the work health and safety (WHS) procedures and principles that relate to sound editing.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- sound editing software and equipment
- productions where sound editing is required
- production documentation


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- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# CUASOU504 Produce sound recordings

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Application

This unit describes the skills and knowledge required to plan, organise and produce audio recordings.

It applies to individuals who work collaboratively and creatively with artists and performers to produce audio recordings for distribution via any media.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Media and entertainment production – audio/sound

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm concept for recording project | 1.1 Use knowledge of commercial trends, market niches, new styles and artists to develop the vision and concept for a recording project<br>1.2 Discuss and confirm vision and concepts with relevant people, and achieve consensus on project outcomes<br>1.3 Establish and discuss production requirements for recording project with relevant people<br>1.4 Research copyright requirements to confirm project process and outcomes will comply with legislation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | |
| 2. Confirm arrangements for recording project | 2.1 Confirm repertoire, artists, project outcomes and operational details with relevant people<br>2.2 Confirm project outcomes can be achieved within time and budget constraints<br>2.3 Plan and agree on communication processes and recording schedule with relevant people<br>2.4 Draw up and distribute rehearsal and recording schedules to relevant people<br>2.5 Discuss and confirm appropriate recording locations with relevant people |
| 3. Coordinate and conduct sound recording sessions | 3.1 Confirm that sessions are scheduled to allow adequate rehearsal and sound testing prior to main recording sessions<br>3.2 Confirm recording location, sound equipment and recording format meet production and work health and safety (WHS) requirements<br>3.3 Assess the acoustic characteristics of the recording location, and provide feedback on instrument/voice placement and settings to relevant people<br>3.4 Provide balanced, constructive and supportive feedback to artists, to ensure that performance meets project expectations<br>3.5 Recognise and consider individual perspectives, and negotiate acceptable outcomes to conflicts as required<br>3.6 Monitor and adjust recording to produce a final product that meets required project outcomes |
| 4. Evaluate recording process and product | 4.1 Use appropriate techniques to evaluate the recording process and completed product<br>4.2 Seek feedback and opinions from relevant people, and document results of evaluation<br>4.3 Evaluate own role in the recording process, and note areas for improvement<br>4.4 Use evaluation results to improve future practice |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 4.3, 4.4 | • Uses self-evaluation and reflection to identify strategies to build own skills and knowledge |
| Reading | 1.4 | • Interprets textual information from relevant sources to identify compliance with policy and procedures |
| Writing | 1.1, 2.3, 2.4, 4.3 | • Prepares specific information using terminology and a form appropriate to the task and audience |
| Oral Communication | 1.2, 1.3, 2.1, 2.3, 2.5, 3.3-3.5, 4.2 | • Uses industry appropriate language to check understandings and elicit different viewpoints<br>• Participates in a verbal exchange of ideas/solutions, and draws on active listening strategies |
| Numeracy | 2.2, 2.3, 3.1 | • Uses mathematical concepts and calculations to estimate and plan project costs and timeframes |
| Navigate the world of work | 1.4, 3.2 | • Identifies, confirms and applies legislative requirements relevant to role |
| Interact with others | 1.2, 1.3, 2.1, 2.3, 2.5, 3.3-3.5, 4.2 | • Collaborates and works cooperatively to maximise creative objectives<br>• Uses appropriate communication practices to discuss and direct requirements and agree on outcomes<br>• Considers the perspectives of others during planning and production<br>• Anticipates potential for conflict and deals with conflict effectively |
| Get the work done | 1.3, 2.1, 2.3, 2.5, 3.1-3.6, 4.1, 4.3, 4.4 | • Plans and priorities a range of tasks, including contingencies to achieve goals efficiently<br>• Identifies innovative approaches that could enhance outcomes<br>• Analyses information to make decisions and solve problems<br>• Evaluates own role to make improvements in the creative process |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| CUASOU504 Produce sound recordings | CUSSOU502A Produce sound recordings | Updated to meet Standards for Training Packages.<br>Minor edits to performance criteria to clarify intent. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# Assessment Requirements for CUASOU504 Produce sound recordings

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with CUA Creative Arts and Culture Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- develop creative sound concepts for recording projects
- work creatively, collaboratively and constructively with others to produce at least two sound recordings for distribution
- adjust recordings to achieve project outcomes
- document the evaluation of the recording process, outcomes and own role.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the production requirements that may impact decisions about recording projects
- explain the legislative requirements that relate to sound recording
- explain how different recording and performance environments affect sound, and what adjustments can be made to produce required sound recordings
- explain the sound equipment required for a range of recording situations
- describe techniques for evaluating the quality of a sound recording
- explain the issues and challenges that typically arise when producing sound recordings, and how to address them.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in creative arts industry environments. The assessment environment must include access to:

- relevant instruments and equipment


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- scores, charts or other written music resources
- participants, such as performers and technical crew
- appropriate recording facilities with adequate space and acoustic qualities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational educational and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1db201d9-4006-4430-839f-382ef6b803d5


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# ICTBWN302 Install optical fibre splitters in fibre distribution hubs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install optical fibre splitters in fibre distribution hubs (FDH) as part of a fibre to the premises (FTTP) network.

It applies to individuals who work in teams to deliver very high speed broadband capacity for the National Broadband Network (NBN) initiative.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – broadband and wireless networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Set up and prepare for installation | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Scope work by obtaining project plan from appropriate personnel and arrange for site access to comply with security arrangements<br>1.3 Notify appropriate personnel of identified safety hazards at worksite |


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| | |
|---|---|
| | 1.4 Determine type of FDH enclosure and optical splitter module from project plan, and identify splitter installation requirements using work instructions<br>1.5 Obtain tools and safety equipment and material to perform tasks safely and efficiently<br>1.6 Select and use required protective equipment and make site safe and secure for installation work<br>1.7 Obtain splitter module, visually inspect for splitter module damage and replace if necessary |
| 2. Install splitter module in FDH | 2.1 Follow work health and safety (WHS) and environmental requirements, and identify and avoid other services<br>2.2 Open enclosure and assess suitability of FDH according to project plan<br>2.3 Locate next available slot in splitter module area of FDH for installation<br>2.4 Insert splitter module and secure according to manufacturer's specifications<br>2.5 Inspect installed splitter module and surrounding area for completeness of job |
| 3. Prepare and connect splitter input fibres to feeder cable | 3.1 Locate feeder port to be connected and remove protective cover in preparation<br>3.2 Use optical power meter to verify feeder port is not active<br>3.3 Clean adaptor and mated connector according to manufacturer's specifications, and route splitter input fibre to correct feeder port<br>3.4 Remove dust cap and clean end face according to manufacturer's specifications to prevent possible damage from mating contaminated connectors<br>3.5 Connect input fibre to feeder port and record connection according to organisational policy |
| 4. Connect output fibres and test splitter | 4.1 Determine output fibre to be connected and required adapter in distribution field<br>4.2 Clean adapter and fibre end-face according to manufacturer's specifications<br>4.3 Route output fibre and connect with adapter in distribution field<br>4.4 Test operation of optical splitter for optical power levels at operating wavelength division multiplexing (WDM) optical wavelengths<br>4.5 Record connections, test results and park unused fibre leads for safety reasons according to organisational policy |


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| | |
|---|---|
| 5. Clean up work site | 5.1 Replace all dust caps on internal enclosures and close FDH<br>5.2 Remove installation waste and debris from worksite and dispose of according to environmental requirements<br>5.3 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.1-2.4, 3.2-3.4, 4.1, 4.2, 4.5 | • Reads and interprets specifications and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.2, 1.3, 3.5, 4.5, 5.3 | • Accurately completes relevant reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 1.2, 1.3, 5.3 | • Participates in verbal exchanges with key personnel using appropriate, clear and detailed language to exchange information, ideas or solutions<br>• Uses listening and questioning skills to confirm understanding of requirements |
| Numeracy | 3.2, 3.5, 4.4 | • Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.4, 2.1, 3.5, 4.5, 5.2 | • Complies with explicit policies and procedures<br>• Explores and implements where identified the implicit expectations of policies and procedures |
| Interact with others | 1.2, 1.3, 5.3 | • Identifies and takes steps to follow accepted communication practices and protocols<br>• Complies with work instructions and contributes to work group discussions using accepted conventions |
| Get the work done | 1.1, 1.4-1.7, 2.2-2.5, 3.1-3.5, 4.1-4.5, 5.1, 5.2 | • Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities<br>• Responds to predictable routine problems and implements standard or logical solutions<br>• Uses the main features and functions of digital tools |


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| | | |
|---|---|---|
| | | to complete work tasks and access information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTBWN302 Install optical fibre splitters in fibre distribution hubs | ICTBWN3088B Install optical fibre splitters in fibre distribution hubs | Updated to meet Standards for Training Packages<br><br>Minor changes to Performance Criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTBWN302 Install optical fibre splitters in fibre distribution hubs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- comply with all work health and safety (WHS) regulations, standards and work practices
- safely use optical power test equipment
- accurately measure optical signals at two wavelength division multiplexing (WDM) wavelengths
- correctly install splitter in the enclosure
- connect input and out optical fibres to the splitter
- test optical splitter
- complete connection recording.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the location and summarise the contents of relevant organisational policies and procedures
- discuss WHS risks and control measures when working with optical fibre and equipment
- explain propagation of light in optical communication systems
- outline the role of transmitters and receivers in optical communication systems
- identify and describe the critical aspects of cleaning of connectors
- summarise specific WHS requirements relating to the handling of optical fibre and the use of laser light sources
- explain WDM applications.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – broadband and wireless networks field of work and include access to:

- a fibre distribution hub and relevant optical splitter
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTBWN303 Install lead-in module and cable for fibre to the premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install a lead-in module and its associated cable for a fibre to the premises (FTTP) installation. Optical networks and FTTP are part of the strategies by service providers using wavelength division multiplexing (WDM) to deliver very high speed broadband capacity through the access network for the National Broadband Network (NBN) initiative.

It applies to individuals with specialist technical skills who work in teams to provide either underground or aerial services in next generation networks (NGN) using emerging technologies.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – broadband and wireless networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Set up and | 1.1 Obtain relevant legislation, codes, regulations and standards for |


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| | |
|---|---|
| prepare for installation | compliance when conducting work<br>1.2 Scope work by obtaining project plan from appropriate personnel and arrange for site access to comply with security arrangements<br>1.3 Notify appropriate personnel of identified safety hazards at worksite<br>1.4 Determine type of lead-in module and cable from project plan and identify installation requirements using work instructions<br>1.5 Obtain tools and safety equipment and material to perform tasks safely and efficiently<br>1.6 Select and use required protective equipment and make site safe and secure for installation work<br>1.7 Obtain lead-in module, visually inspect for lead-in module damage and replace if necessary |
| 2. Install lead-in module in enclosure | 2.1 Follow work health and safety (WHS) and environmental requirements for given work, and identify and avoid other services<br>2.2 Identify position in enclosure to secure module and install mounting bracket according to manufacturer's specifications<br>2.3 Splice lead-in module tail to distribution joint<br>2.4 Attach lead-in module to mounting bracket and secure in position |
| 3. Install optical fibre lead-in cable to premises | 3.1 Unpack and prepare lead-in cable according to manufacturer's specifications<br>3.2 Haul optical fibre lead-in cable to premises, observing maximum strain on cable for underground installation<br>3.3 Coil excess cable length within enclosure<br>3.4 Install aerial lead-in using catenary and bearer wire to meet relevant height and minimum sag requirements |
| 4. Terminate lead-in cable at premises | 4.1 Access optical network termination (ONT) unit to expose lead-in cable to retrieve fibre and connector<br>4.2 Clean ONT adapter and connector according to manufacturer's specifications<br>4.3 Mate fibre connector with ONT adapter, ensuring free of contaminants<br>4.4 Route fibre cable within ONT and secure in position<br>4.5 Test operation of lead-in at ONT for optical power levels at designated operating WDM optical wavelength<br>4.6 Record connections, test results and park unused fibre leads for safety reasons according to organisational policy |
| 5. Clean up work site | 5.1 Seal ONT and enclosure<br>5.2 Remove installation waste and debris from worksite and dispose of |


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| | |
|---|---|
| | according to environmental requirements<br>5.3 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.1, 2.2, 2.4, 3.1, 3.3, 3.4, 4.2, 4.5, 4.6 | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.2, 1.3, 3.5, 4.5, 4.6, 5.3 | • Accurately completes relevant reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 1.2, 1.3, 5.3 | • Participates in verbal exchanges with key personnel using appropriate, clear and detailed language to exchange information, ideas or solutions<br>• Uses listening and questioning skills to confirm understanding of requirements |
| Numeracy | 3.2, 3.4 | • Takes measurements and uses them for work layout and construction<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.4, 2.1, 2.2, 3.4, 4.6, 5.2 | • Complies with explicit policies and procedures<br>• Explores and implements where identified the implicit expectations of policies and procedures |
| Interact with others | 1.2, 1.3, 5.3 | • Uses a limited range of accepted practices for communicating in a work environment<br>• Complies with work instructions and contributes to work group discussions using accepted conventions |
| Get the work done | 1.1, 1.5-1.7, 2.2, 3.2-3.4, 4.1-4.6, 5.1, 5.2 | • Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness |


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| | | |
|---|---|---|
| | | of the outcome<br>• Uses the main features and functions of digital tools to complete work tasks and access information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTBWN303 Install lead-in module and cable for fibre to the premises | ICTBWN3090B Install lead-in module and cable for fibre to the premises | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTBWN303 Install lead-in module and cable for fibre to the premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- safely use optical power test equipment
- accurately measure optical signals at TWO wavelength division multiplexing (WDM) wavelengths
- install lead-in module in the enclosure for both an aerial and an underground installation
- complete connection recording for both lead-ins
- perform and test an optical fibre lead-in to a distribution joint.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline licence requirements for working at heights
- identify the location and summarise the contents of relevant organisational policies and procedures
- discuss personal safety issues
- explain the propagation of light in optical communication systems
- describe the role of transmitters and receivers in optical communication systems
- identify the critical aspects of site engineering
- explain specific WHS requirements relating to the handling of optical fibre and the use of laser light sources
- explain WDM applications.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – broadband and wireless networks field of work and include access to:

- a fibre lead-in module, distribution pit, premises conduit and relevant optical network termination (ONT) unit
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to work safely on a live optical fibre installation to test and commission a wavelength division multiplexing (WDM) system or connect a splitter for fibre to the x (FTTx) deployment.

It applies to individuals who engage in safe work practices as members of a team using emerging technologies to deliver very high speed broadband capacity through the access network for the National Broadband Network (NBN) initiative.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Pre-requisite Unit

ICTBWN305 Use optical and radio frequency measuring instruments

and

ICTWHS204 Follow work health and safety and environmental policy and procedures

## Unit Sector

Telecommunications – broadband and wireless networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements* | *Performance criteria describe the performance needed to demonstrate* |


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| *describe the essential outcomes* | *achievement of the element.* |
|---|---|
| 1. Set up and prepare for working with live fibre | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Scope work by obtaining project plan from appropriate personnel and arrange for site access to comply with security arrangements<br>1.3 Notify appropriate personnel of identified safety hazards at worksite<br>1.4 Determine type of FTTx equipment, components of optical distribution network (ODN) and WDM components from project plan for testing and commissioning<br>1.5 Obtain tools and safety equipment and materials to perform tasks safely and efficiently<br>1.6 Select and use required protective equipment and make site safe and secure for commissioning work<br>1.7 Create safe working environment by following safe work practices and identifying optical fibre hazards that could cause injuries when handling optical fibres and laser based equipment |
| 2. Connect splitter input fibre to feeder cable | 2.1 Follow workplace health and safety (WHS) and environmental requirements for given work, and identify and avoid other services<br>2.2 Locate feeder fibre port to be connected<br>2.3 Determine state (live or not) of fibre port to be connected and notify transmitter to ensure that power is turned off at source if fibre port is live<br>2.4 Connect up connectorised splitter input fibres as instructed by manufacturer<br>2.5 Arrange for power to be turned back on to newly connected feeder port |
| 3. Perform live WDM commission testing of ODN installation used in FTTx network | 3.1 Locate appropriate test points in ODN from manufacturer’s instructions for WDM testing<br>3.2 Test live wavelengths for WDM tests following safety precautions<br>3.3 Test optical signal strengths for operating wavelengths incoming into optical network termination (ONT) and determine if signal strengths are within range of acceptable power levels<br>3.4 Test losses between WDM outputs and individual line multiplexers (LM) for each wavelength, and determine if within maximum and minimum power losses<br>3.5 Conduct all acceptance tests as specified by manufacturer<br>3.6 Record and tabulate all test results for commissioning requirements |


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| | |
|---|---|
| 4. Clean up worksite | 4.1 Seal and secure any enclosures and cabinets<br>4.2 Remove waste and debris from worksite and dispose of according to environmental requirements<br>4.3 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.2, 2.4, 3.1, 3.3-3.5 | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements<br>• Analyses and consolidates test results and data from a range of sources, against defined criteria and requirements |
| Writing | 1.2, 1.3, 3.6, 4.3 | • Accurately completes relevant reports and documentation and communicates openly with team members using clear and technically specific language and numerical data |
| Oral Communication | 1.2, 1.3, 4.3 | • Participates in verbal exchanges with key personnel using appropriate, clear and detailed language to exchange information, ideas or solutions<br>• Uses listening and questioning skills to confirm understanding of requirements |
| Numeracy | 3.2-3.4 | • Performs mathematical calculations to check, interpret and confirm results of system tests<br>• Takes measurements and uses them for work layout and construction |
| Navigate the world of work | 1.7, 2.1, 4.2 | • Complies with explicit policies and procedures<br>• Explores and implements where identified the implicit expectations of policies and procedures |
| Interact with others | 1.2, 1.3, 4.3 | • Uses a limited range of accepted practices for communicating in a work environment |


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| | | |
|---|---|---|
| | | • Complies with work instructions and contributes to work group discussions using accepted conventions |
| Get the work done | 1.1, 1.2, 1.4-1.7, 2.2-2.5, 3.1-3.5, 4.1, 4.2 | • Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness of the outcome<br>• Uses the main features and functions of digital tools to complete work tasks and access information |

# Range of Conditions

*This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) should be included.*

| | |
|---|---|
| Operating wavelengths are: | • 1310 nm<br>• 1490 nm<br>• 1550 nm. |
| Ranges of acceptable power levels are: | • -2 to + 2 dBm @ 1310 nm<br>• -26 to -6 dBm @ 1490 nm<br>• -11.5 to +5 dBm @ 1550 nm. |
| Maximum and minimum power losses are: | • 23.3 dB to 15.0 dB @1310 nm<br>• 21.6 dB to 8.0 dB @1490 nm<br>• 20.9 dB to 9.5 dB @1550 nm. |
| Acceptance tests are: | • delay<br>• dispersion<br>• optical attenuation and loss measurements<br>• optical power levels<br>• phase. |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation | ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation | Updated to meet Standards for Training Packages<br>Additional prerequisite unit | No equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- comply with all job requirements and work health and safety (WHS) regulations, standards and work practices
- use optical power test equipment
- evaluate test results
- safely connect input and output optical fibres to the splitter
- conduct live tests measuring optical signals at three wavelength division multiplexing (WDM) wavelengths on optical devices
- conduct acceptance tests for commissioning
- complete connection recording.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the location and summarise the contents of relevant organisational policies and procedures
- discuss personal safety issues
- outline the propagation of light in optical communication systems
- explain the role of transmitters and receivers in optical communication systems
- identify the critical aspects of site engineering
- describe the specific WHS risks and controls relating to the handling of optical fibre and the use of laser light sources
- describe WDM applications.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – broadband and wireless networks field of work and include access to:

- a WDM system and relevant optical splitter
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTBWN305 Use optical and radio frequency measuring instruments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to set up and use hand-held optical and radio frequency (RF) communications instruments to perform installations, upgrades and fault-finding on optical and RF equipment.

It applies to individuals who are able to combine technical skills with organisational and administrative skills. They often work as members of a team and communicate well with others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – broadband and wireless networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use measuring instruments | 1.1 Obtain approval for site access with client or site owner prior to site entry<br>1.2 Identify purpose of test and type of measurement required<br>1.3 Select appropriate tools and instruments according to required |


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| | |
|---|---|
| | measurement<br>1.4 Check tools and instruments and calibrate to ensure accuracy<br>1.5 Obtain resources required<br>1.6 Devise and implement risk control measures in consultation with appropriate personnel, and document safety hazards |
| 2. Conduct measurements | 2.1 Follow site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>2.2 Set up test equipment according to manufacturer's instructions and safe industry practice<br>2.3 Perform measurement using knowledge of appropriate testing techniques to assess overall system performance<br>2.4 Record and interpret test results and compare with standard test specifications<br>2.5 Clean work area and make safe according to established procedures |
| 3. Document measurement results | 3.1 Document test results and make recommendations to achieve optimum performance<br>3.2 Notify client of work completion |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 2.1, 2.2, 2.4 | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements<br>• Interprets and consolidates test results and data from a range of sources, against defined requirements |
| Writing | 1.1, 1.6, 2.4, 3.1, 3.2 | • Accurately records and completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology |
| Oral Communication | 1.1, 1.6, 3.2 | • Participates in verbal exchanges with key personnel using appropriate, clear and detailed language to exchange information, ideas or solutions<br>• Uses listening and questioning skills to confirm understanding of requirements |


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| | | |
|---|---|---|
| Numeracy | 1.4, 2.3 | • Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 2.1, 2.2, 2.5 | • Complies with explicit policies and procedures<br>• Explores and implements where identified the implicit expectations of policies and procedures |
| Interact with others | 1.1, 1.6, 3.2 | • Uses a limited range of accepted practices for communicating in a work environment<br>• Complies with work instructions and contributes to work group discussions using accepted conventions |
| Get the work done | 1.2-1.6, 2.2-2.5, 3.1 | • Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness of the outcome<br>• Uses the main features and functions of digital tools to complete work tasks and access information |

# Range of Conditions

*This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) should be included.*

| | |
|---|---|
| Type of measurement must include: | • optical measurement:<br>  • detecting the presence of an active optical network terminal (ONT)<br>  • determining absolute optical power (in dBm)<br>  • determining insertion loss (in dB)<br>  • determining relative optical power level (in dB)<br>• RF measurement:<br>  • determining absolute RF power (in dBm)<br>  • determining relative RF power level (in dB)<br>  • determining relative RF voltage (in dBmV). |
| Instruments must include: | • hand-held optical power meter<br>• hand-held optical source<br>• handheld optical fiber identifier (OFI-FTTx) active optical network termination (ONT) detector<br>• operate optical loss test set (OLTS) |


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| | |
|---|---|
| | • passive optical network (PON) meter<br>• signal level meter (SLM). |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTBWN305 Use optical and radio frequency measuring instruments | ICTBWN3205B Use optical and radio frequency measuring instruments | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTBWN305 Use optical and radio frequency measuring instruments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- comply with all job requirements and work health and safety (WHS) regulations, standards and work practices
- check and calibrate tools and instruments
- perform optical measurements using hand-held instrument
- perform radio frequency (RF) measurements using hand-held instrument
- operate the following equipment:
  - hand-held optical power meter
  - hand-held optical source
  - passive optical network (PON) meter
  - radio frequency (RF) signal level meter (SLM)
- perform the following optical measurements:
  - detect the presence of an active optical network terminal (ONT)
  - determine absolute optical power (in dBm)
  - determine insertion loss (in dB)
  - determine relative optical power level (in dB)
- perform the following RF measurements:
  - determine absolute RF power (in dBm)
  - determine relative RF power level (in dB)
  - determine relative RF voltage (in dBmV).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.


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# Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe the various instruments used in measuring RF and optical frequencies
- list the types of measurements and their respective interpretation for optical and RF frequencies
- explain the consequences of mating contaminated optical connectors
- correctly record and discuss data using the units decibels, dBm and dBmV
- discuss the variations between optical and RF connector types
- identify and describe the WHS hazards and risks, and describe controls when working with RF frequency measuring equipment
- outline RF spectrum and optical spectrum limits and allocations
- discuss safe handling procedures with optical fibres.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – broadband and wireless networks field of work and include access to:

- a site where measuring instruments can be used
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL201 Install customer cable support systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install support systems for cable infrastructure for new installations or upgrades, or maintain existing networks in domestic, commercial and industrial installations.

It applies to individuals who work in technical roles planning cable routes and selecting and installing support structures for communications applications including digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare cable support installation | 1.1 Arrange access to site according to customer requirements, required procedures, site security arrangements and relevant legislation, codes, regulations and standards<br>1.2 Confirm site capacities for storage and location of cable feeders or |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | establish alternative methods<br>1.3 Determine customer specifications, and manufacturer and enterprise requirements for cable support<br>1.4 Notify appropriate personnel of identified safety hazards at cabling worksite<br>1.5 Plan cable route identifying and avoiding other services, and remote power feeding services operating at above telecommunications network voltage (TNV) on site in commercial buildings<br>1.6 Select tools and materials for installation of support system from work specifications and schedules |
| 2. Determine cable routes | 2.1 Review relevant plans and verify cable locations<br>2.2 Select cable routes appropriate to location of building services, providing access to all outlets and enabling cable to be supported to outlet point<br>2.3 Plan safe and efficient installation by accurate identification of structural building requirements and identified site constraints<br>2.4 Identify cable and services segregation clearances to ensure cable route complies with manufacturer, enterprise, legislative and industry codes of practice |
| 3. Determine support method | 3.1 Select appropriate support system for planned cable route and identified site constraints<br>3.2 Prepare support system for capability to meet planned concentration of cable in any location to facilitate ready access for maintenance and allow for future expansion |
| 4. Mark out and install fixings and support structure | 4.1 Mark out and install fixings and structures securely in safe manner to manufacturer’s specifications, ensuring cable weight can be supported in all operating conditions<br>4.2 Align support structure correctly to enable cable to be installed evenly, in order and without damage<br>4.3 Install protective earthing to industry standards<br>4.4 Conduct work with minimal disruption to ongoing customer activity |
| 5. Complete support installation | 5.1 Check and adjust installed supports to ensure cable will not be exposed to damage during installation and operation<br>5.2 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.3 Complete documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.4 | • Interprets textual information from relevant sources to identify relevant and key information |
| Writing | 1.4, 5.3 | • Uses clear, specific and industry-related terminology to complete workplace documentation |
| Oral Communication | 1.4 | • Uses clear language and concepts, and tone and pace appropriate for the audience and purpose |
| Numeracy | 1.2, 1.3, 1.5 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.1, 1.4, 2.3, 2.4, 4.1, 4.3, 5.2 | • Complies with explicit policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.1, 1.4 | • Identifies and follows accepted communication practices and protocols when liaising with internal and external personnel on technical and operational matters |
| Get the work done | 1.1-1.6, 2.2, 3.1, 3.2, 4.1-4.4, 5.1, 5.2 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Selects and uses appropriate tools and equipment to perform tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL201 Install customer cable | ICTCBL2005B Install customer cable | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| support systems | support systems | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL201 Install customer cable support systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan a cable route and cable support system
- interpret plans and schematic drawings to verify cable layout
- install three different support structures:
  - catenary wire
  - ducts and/or trays
  - frame back-mounts
- complete cable support installation, applying relevant regulations, standards and work practices
- comply with all related work health and safety (WHS) requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise building construction methods of commercial buildings as they relate to routing cables
- describe features and operating requirements of cable installation equipment
- identify other services that may impact on cable installations
- describe cable installation support methods and their performance features
- outline legislation, codes of practice and other formal agreements that impact on the work activity
- discuss typical safety issues and challenges that occur on a commercial installation site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where customer cable support systems may be installed
- equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on cable installation activities.

Note: Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Refer to the ICT Implementation Guide Companion Volume for recommended assessor details.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL202 Place and secure customer cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install customer cable infrastructure. It involves selecting cable route, setting up cable dispensers and placing and securing cable.

It applies to individuals who work in technical roles and who may be required to do new installations, upgrades or maintain existing networks in domestic, commercial and industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for task and identify cable route | 1.1 Arrange access to site according to customer instructions, required procedures, site security arrangements and relevant legislation, codes, regulations and standards<br>1.2 Notify appropriate personnel of identified safety hazards at cabling |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | worksite<br>1.3 Plan cable route, identifying and avoiding other services and remote power feeding services operating at above telecommunications network voltage (TNV) on site in commercial buildings<br>1.4 Select cable route to maintain required clearances and segregations according to cable plan and complying with relevant industry standards<br>1.5 Confirm cable route and requirements with customer<br>1.6 Select tools, equipment and cables for installation of support system from work specifications and schedules |
| 2. Set up cable dispensers | 2.1 Determine feeder locations to minimise wastage of cable and efficiency<br>2.2 Set up feeders in locations to provide ease of access during hauling of cable<br>2.3 Secure feeder locations to minimise safety risks during installation<br>2.4 Label hauling end of cable with unique identifier prior to placement |
| 3. Place and secure cable | 3.1 Haul and place cable in safe manner within clearances required by industry standards, and manufacturer and work specifications<br>3.2 Place cable in neat, orderly and methodical manner, allowing sufficient excess at cable ends to facilitate termination<br>3.3 Inspect cable to maintain separations to comply with regulations<br>3.4 Install barriers to achieve separations where sufficient spatial separation cannot be met with other services<br>3.5 Install and trim securing anchors promptly to restrain cable movement to manufacturer’s specifications |
| 4. Complete cable installation | 4.1 Update records and cable plans promptly and accurately<br>4.2 Store records and plans according to customer and company requirements<br>4.3 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 1.6, 4.2 | • Interprets textual information from relevant sources to identify relevant and key information<br>• Reads and interprets plans to help to determine cable layout |
| Writing | 1.2, 2.4, 4.1 | • Uses clear, specific and industry related terminology to complete workplace documentation |
| Oral Communication | 1.1, 1.2, 1.5 | • Provides information using appropriate language for the environment and purpose<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.1 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.1, 2.3, 3.1, 3.3, 3.5, 4.3 | • Complies with explicit policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.1, 1.2, 1.5 | • Identifies and follows accepted communication practices and protocols when liaising with internal and external personnel on technical and operational matters |
| Get the work done | 1.3, 1.4, 1.6, 2.1-2.4, 3.2, 3.4, 4.1, 4.2 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL202 Place and secure customer cable | ICTCBL2006B Place and secure customer cable | Updated to meet Standards for Training Packages | Equivalent unit |


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# Assessment Requirements for ICTCBL202 Place and secure customer cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan cable placement and discuss the installation requirements with appropriate personnel
- organise tools, equipment and materials for cable installation according to specifications
- set up cable dispensers for internal or external premises structures or aerial and underground cabling between premises
- haul and install cables on support structures and building faces for both internal and external locations, applying relevant regulations and standards
- install securing methods for above locations
- complete records and relevant statutory forms
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise building construction of commercial buildings
- examine cable and services segregation clearances to ensure cable route complies with manufacturer, enterprise, legislative and industry codes of practice
- describe features and operating requirements of equipment
- indicate the information required to operate appropriate equipment according to specifications
- explain installation methods and performance requirements
- outline legislation, codes of practice and other formal agreements that impact on cable installation
- state manufacturer’s requirements for safe operation of equipment
- describe the common methods of hauling cable


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- discuss typical damage that can occur to cable when it is hauled incorrectly
- discuss specific WHS requirements relating to the activity and site conditions
- discuss typical safety issues and challenges that occur on cable installation sites.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where placing and securing customer cable may be conducted
- equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on cable installation activities.

Note: Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Refer to the ICT Implementation Guide Companion Volume for recommended assessor details.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL203 Terminate metallic conductor customer cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to terminate metallic conductor cable or join cable in a terminating block for a new cable installation or upgrade of cable capacity for an existing network or subsystem, or cabling infrastructure for convergence to next generation networks (NGN).

It applies to individuals who work in technical roles carrying out indoor and outdoor, domestic, commercial or industrial installations for all communications applications, digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare cable termination | 1.1 Arrange access according to customer and individual worksite requirements<br>1.2 Prepare for cable terminating work within regulatory environment, cabling environment, cable type, cable identification, termination |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | systems, earthing and protection, records and relevant legislation, codes, regulations and standards<br><br>1.3 Select correct termination for installation according to strategies to manage infrastructure and relevant legislation, codes, regulations and standards<br><br>1.4 Notify appropriate personnel of identified safety hazards at cabling worksite<br><br>1.5 Identify remote power feeding services that operate at above telecommunications network voltage (TNV) inside customer premises, and risks posed by contact with remote power feed<br><br>1.6 Remove all contaminants from worksite that may adversely affect termination and prepare worksite to ensure adequate visibility to minimise errors and reduce eye strain<br><br>1.7 Design cable and block location within frame with capacity for expansion where possible<br><br>1.8 Segregate incoming and outgoing cables for ease of access and to minimise overlaying and backtracking of cable |
| 2. Terminate cable | 2.1 Remove cable sheath to allow for conductor length and installation requirements<br><br>2.2 Fan out cable pair groups to manufacturer's coding system to ensure correct terminating sequence and unique identification where appropriate<br><br>2.3 Install over-voltage protection devices to all cables with metallic component where required<br><br>2.4 Install terminating modules to frame according to manufacturer's specifications<br><br>2.5 Fan cable pairs neatly to termination equipment to facilitate accurate termination<br><br>2.6 Terminate cable following work health and safety (WHS) and environmental requirements to manufacturer's specifications using correct tool<br><br>2.7 Earth cable shield to manufacturer's specifications and industry standards |
| 3. Test termination | 3.1 Conduct visual inspection to confirm that termination colour code sequence has been followed<br><br>3.2 Test termination to satisfy performance specifications and record results if required |
| 4. Complete records and | 4.1 Label cable pairs clearly to provide an accurate identification |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| clean up site | according to manufacturer, industry and customer standards<br>4.2 Update records and plans with cabling details to provide accurate record according to industry codes of practice and current Australian standards<br>4.3 Complete telecommunications cabling advice (TCA) forms and provide to customer<br>4.4 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 3.1 | • Interprets textual information from relevant sources to identify relevant and key information |
| Writing | 1.4, 3.2, 4.1-4.3 | • Uses clear, specific and industry related terminology to complete workplace documentation |
| Numeracy | 3.2 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.6, 2.6, 2.7, 4.4 | • Complies with explicit policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.4, 4.3 | • Identifies and follows accepted communication practices and protocols when liaising with customers, colleagues or supervisors |
| Get the work done | 1.3, 1.5, 1.7, 1.8, 2.1-2.5 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL203 Terminate metallic conductor customer cable | ICTCBL2008A Terminate metallic conductor customer cable | Updated to meet Standards for Training Packages<br>Performance Criteria clarified | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL203 Terminate metallic conductor customer cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and prepare for cable termination activity
- terminate systems at both distributor and outlet locations
- terminate one jumperable distributor (campus distributor or building distributor) with a capacity of 100 pair or greater and one non-jumperable distributor (local distributor) and a patch panel
- terminate at least one 50 pair, one 4 pair ethernet unshielded twisted pair (UTP) data cable and one ethernet shielded twisted pair (STP) data cable, including accurate completion of installation records, drawing alterations and compliance forms
- use correct methods to terminate a range of cables
- conduct and interpret cable test results on a minimum of three different lead-in faults
- interpret and apply relevant legislation, codes, regulations and standards
- update records and plans to show cable locations
- comply with all related workplace health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the features and operating requirements of testing
- explain how to operate termination tools to manufacturer's guidelines
- outline legislation, codes of practice and other formal agreements that impact on the work activity
- describe how to install and maintain cabling products to manufacturer's guidelines
- discuss specific WHS requirements relating to the activity and site conditions


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- explain termination methods and performance requirements
- discuss typical issues and challenges that occur on site.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where metallic conductor cable may be terminated
- colour codes for visual inspections or wire-mappers for 4 pair cable tests
- relevant regulatory and cabling documentation that impacts on cable terminating activities.

Note: Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Refer to the ICT Implementation Guide Companion Volume for recommended assessor details.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL204 Install functional and protective telecommunications earthing system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install telecommunications earthing system to metallic frames, which includes digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to telecommunications technicians and field officers who install indoor or outdoor earthing systems for domestic, small office home office (SOHO), commercial or industrial installations in multi-storey and multi-site locations within a client's premises.

Licensing, legislative, regulatory and certification requirements apply to telecommunications earthing systems. All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install telecommunications earthing system | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access according to client and individual site |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements<br>1.3 Select earth wire for purpose intended according to specifications or current Australian Standards<br>1.4 Establish location of earthing applications, minimising risks posed by contact with remote power feeding services<br>1.5 Select route to minimise interference to system performance and according to safe working practices<br>1.6 Select earthing materials to comply with relevant industry standards |
| 2. Install and secure earth cable | 2.1 Maintain cable separations to meet performance requirements of application environment<br>2.2 Check earth cable insulation is undamaged to ensure integrity of earth provided<br>2.3 Isolate protective earth (PE), functional earth and telecommunication reference conductors (TRC) at all times to ensure operation according to industry standards<br>2.4 Install and secure cable following work health and safety (WHS) and environmental requirements, meeting manufacturer's specifications and industry standards |
| 3. Terminate and test earth cable installation | 3.1 Terminate earth with connectors recommended by manufacturer and according to industry standards<br>3.2 Maintain earth continuity at all times to ensure safe and reliable system operation<br>3.3 Maintain correct interface requirements with electrical systems according to industry standards<br>3.4 Test earthing system according to manufacturer's specifications in safe manner<br>3.5 Rectify earth system faults, where required, prior to re-testing |
| 4. Complete task and documentation | 4.1 Label earthing systems according to industry regulations<br>4.2 Complete documentation, including test records<br>4.3 Clean up and restore worksite<br>4.4 Notify client and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1, 3.4, 4.2 | • Recognises when unknown words are essential to meaning and uses a range of decoding strategies to identify them<br>• Recognises the structures and distinguishing features of a range of text types |
| Writing | 1.2, 4.1-4.2 | • Produces a range of text types (familiar and some unfamiliar) with appropriate structures |
| Oral Communication | 1.2, 4.4 | • Demonstrates awareness of choices for register, especially in situations that are familiar |
| Navigate the world of work | 1.1-1.2, 1.4-1.6, 2.1, 2.3-2.4, 3.1, 3.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Get the work done | 1.1-1.2, 1.4-1.6, 2.2, 3.4-3.5, 4.3 | • Automatically implements standard procedures for routine decisions<br>• Initiates standard procedures when responding to familiar problems within immediate context |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL204 Install functional and protective telecommunications earthing system | ICTCBL2012A Install functional and protective telecommunications earthing system | Updated to meet Standards for Training Packages<br><br>Minor changes to Performance Criteria for clarification | Equivalent unit |


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# Links

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# Assessment Requirements for ICTCBL204 Install functional and protective telecommunications earthing system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate earthing needs for cable systems on client premises
- determine potential earthing locations
- determine earth route and support system
- install earth to a backmount, rack or enclosure
- test the earth installation
- label and document the installation
- manage remote power feed services
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the current Australian Communications and Media Authority (ACMA) Competency Requirements for Telecommunications Cabling Provider Rules, legislation, codes of practice and other formal agreements that impact on the work activity
- describe the features and operating requirements of test equipment
- describe the information required to operate equipment according to a test specification
- describe the types of location in which installations may be required
- identify manufacturer‘s requirements for safe operation of equipment
- identify the applicable Commonwealth, state and territory legislation, regulations, standards, codes of practice and industry standards and guidance notes relevant to WHS, own workplace, work role and responsibilities, the activity and site conditions
- outline the differences between the Commonwealth, state and territory WHS legislation and regulations


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- describe test methods and performance requirements
- identify typical issues and challenges that occur on site
- describe electrical earthing applications including electrical bonding and equipotential bonding
- define earth systems with functionality including elimination of interference from electromagnetic, radio frequency (RF) and power sources, and reduce interference from electromagnetic RF and power sources.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to:

- special purpose tools, equipment and materials
- a relevant telecommunications earthing system
- cable plans and records.

Note: Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Refer to the ICT Implementation Guide Companion Volume for recommended assessor details.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL205 Joint metallic conductor cable on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to joint metallic conductor cable.

It applies to individuals who work in technical roles completing tasks on customer premises in underground situations, pits, jointing enclosures or above ground.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Prepare for jointing | 1.1 Arrange access to site according to required procedures<br>1.2 Inform appropriate personnel of identified hazards on worksite<br>1.3 Organise tools, equipment and materials for given work<br>1.4 Review site plans and documentation<br>1.5 Select cable type and requirements for cable joint |
| 2 Joint cable and test | 2.1 Joint metallic cable following work health and safety (WHS) and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| joint | environmental requirements and complying with manufacturer's requirements and relevant industry standards<br>2.2 Perform relevant cable tests to ensure joint complies with site specifications, manufacturer's specifications and relevant legislation, codes, regulations and standards<br>2.3 Rectify any cable faults<br>2.4 Make visual inspection of joint to confirm soundness and completeness |
| 3 Complete records and clean up site | 3.1 Complete required records and notify customer<br>3.2 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions<br>3.3 Reinstate site according to customer and company requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 2.2 | • Interprets textual information from relevant sources to identify relevant and key information |
| Writing | 3.1 | • Uses clear, specific and industry related terminology to complete workplace documentation |
| Numeracy | 1.3, 2.2 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.1, 2.1, 2.2, 3.2 | • Complies with explicit policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.2, 3.1 | • Identifies and follows accepted communication practices and protocols when liaising with internal and external personnel on technical and operational matters |
| Get the work done | 1.3, 1.5, 2.1-2.4, 3.3 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL205 Joint metallic conductor cable on customer premises | ICTCBL2016A Joint metallic conductor cable on customer premises | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |

# Links

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# Assessment Requirements for ICTCBL205 Joint metallic conductor cable on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- organise resources and prepare for the task of jointing
- joint at least one 20 pair (or greater) cable
- test joint
- interpret test results
- rectify cable faults
- check that the enclosure is properly sealed
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the current Australian Communications and Media Authority (ACMA) Competency Requirements for Telecommunications Cabling Provider Rules, legislation, codes of practice and other formal agreements that impact on the work activity
- describe features and operating requirements of test equipment
- indicate information required to operate equipment according to a test specification
- outline manufacturer’s requirements for safe operation of equipment
- discuss specific WHS requirements relating to the activity and site conditions
- explain test methods and performance requirements
- discuss typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where jointing metallic conductor cable may be conducted
- use of joint testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on cable jointing and testing activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL206 Alter services to existing cable system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes skills and knowledge required to alter existing services to a voice or data cable system within a client's premises and use formal documentation procedures.

It applies to technical staff who alter services to existing cable systems for indoor and outdoor installation within domestic, commercial or industrial installations of communications applications including digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to alter services to existing cable system | 1.1 Arrange access to site according to client instructions and required procedures<br>1.2 Survey site to determine system alteration requirements to existing cable system<br>1.3 Inform appropriate personnel of identified hazards on worksite |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Organise equipment and materials to meet required industry standards and ensure compatibility with existing system |
| 2. Alter cable system | 2.1 Follow work health and safety (WHS) and environmental requirements for given work and according to industry standards<br>2.2 Alter cabling system, conforming to client system specifications and according to industry standards and relevant legislation, codes, regulations and standards |
| 3. Restore and test cable system | 3.1 Confirm compatibility of alterations with existing cabling systems and client equipment<br>3.2 Test new work in isolation and when integrated with existing cabling systems and client equipment<br>3.3 Rectify any cabling faults or escalate client equipment faults to authorised person |
| 4. Complete records and clean up site | 4.1 Update plans and documents to show revised cabling systems accurately and clearly, or create new plans as appropriate<br>4.2 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions<br>4.3 Reinstate site according to client and company requirements<br>4.4 Complete requisite Telecommunications Advice Form and sign off with client to record satisfaction |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1-2.2, 4.4 | • Recognises when unknown words are essential to meaning and uses a range of decoding strategies to identify them |
| Writing | 4.1, 4.4 | • Uses a legible handwriting style or a computer font appropriate to the audience and purpose |
| Oral Communication | 1.1,1.3 | • Demonstrates awareness of choices for register, especially in situations that are familiar |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 1.4, 2.1-2.2, 4.2, 4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Get the work done | 1.2, 1.4, 3.1-3.3 | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected terms<br>• Automatically implements standard procedures for routine decisions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL206 Alter services to existing cable system | ICTCBL2017A Alter services to existing cable system | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL206 Alter services to existing cable system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine alteration requirements and document specifications and cable plan
- alter, restore and test cable system according to industry standards
- rectify cable faults
- complete documentation to industry and company standards
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the relevance of Australian Communications and Media Authority (ACMA) Competency Requirements for Telecommunications Cabling Provider Rules
- identify the relevant legislation, codes of practice and other formal agreements that impact on the work activity
- describe the features and operating requirements of test equipment
- describe the information required to operate equipment according to a test specification
- identify manufacturer’s requirements for safe operation of equipment
- identify specific WHS requirements relating to the activity and site conditions, test methods and performance requirements
- describe test methods and performance requirements
- describe typical cable systems
- list the common types of alterations that can be expected for existing cable systems
- identify typical issues, hazards, access difficulties and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to:

- special purpose tools, equipment and materials
- testing equipment currently used in industry
- regulatory and equipment documentation that impacts on alteration activities.

Note: Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Refer to the ICT Implementation Guide Companion Volume for recommended assessor details.

# Links

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# ICTCBL207 Haul underground cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to haul underground cable for maintenance, new installations or upgrades in access networks or client premises.

It applies to individuals who work in technical roles involving installation and recovery of cables, including multi-pair, coaxial and optical fibre for domestic, commercial or industrial situations.

All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Prepare for safe underground cable hauling | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure<br>1.3 Inform appropriate personnel of identified hazards on worksite<br>1.4 Confirm hauling location of proposed cable according to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | appropriate plan specifications obtained from authorised personnel<br>1.5 Obtain information on proposed locations of other services from relevant authorities<br>1.6 Set up tools and equipment required for safe work practice according to enterprise guidelines<br>1.7 Check for dangerous gases and place guards around open manholes following work health and safety (WHS) and environmental requirements |
| 2 Haul cable | 2.1 Handle existing cables in manner that avoids cable damage<br>2.2 Use roping techniques to prove that conduit is clear for hauling<br>2.3 Attach cable to rope and haul cable into and out of pits and manholes, ensuring no sheath damage<br>2.4 Lubricate cable and haul at correct tension, maintaining smooth passage between dispenser and hauler<br>2.5 Maintain cable and services separations in parallel runs and crossovers to meet manufacturer's and regulation requirements<br>2.6 Maintain sufficient cable length allowance for jointing and ensure cable is laid up and bent within bending radius tolerance for cable materials in underground enclosure<br>2.7 Seal cables according to enterprise requirements to ensure no sheath damage<br>2.8 Tag cable for future identification |
| 3 Complete works on site | 3.1 Record any approved alteration to original design using correct symbols and return to appropriate personnel<br>3.2 Complete and sign reports, where required, according to enterprise policy<br>3.3 Reinstate site to client's satisfaction and dispose of wastes in environmentally safe manner<br>3.4 Notify appropriate personnel and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1, 1.5 | • Interprets textual information from relevant sources to identify relevant and key information |
| Writing | 1.3, 3.1, 3.2, 3.4 | • Uses clear, specific and industry related terminology to complete workplace documentation |
| Numeracy | 1.7 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.1, 1.2, 1.6, 1.7, 3.2, 3.3 | • Complies with explicit policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.3-1.5, 3.3, 3.4 | • Identifies and follows accepted communication practices and protocols when liaising with clients, internal and external personnel on technical and operational matters |
| Get the work done | 1.4-1.6, 2.1-2.8 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL207 Haul underground cable | ICTCBL2064A Haul underground cable | Updated to meet standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |

# Links

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# Assessment Requirements for ICTCBL207 Haul underground cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- haul cable applying related work health and safety (WHS) requirements and work practices
- use cable dispensing equipment
- use specialised hand or power tools and equipment for hauling cable safely
- read and interpret drawings.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the relevance of Australian Communications and Media Authority (ACMA) Competency Requirements for Telecommunications Cabling Provider Rules
- describe features and operating requirements of test equipment
- list information required to operate equipment according to a test specification
- outline legislation, codes of practice and other formal agreements that impact on the work activity
- state manufacturer’s recommendations for correct hauling of optical fibre cables
- clarify safety precautions when working with laser based systems
- discuss specific WHS requirements relating to the activity and site conditions
- explain test methods and performance requirements
- discuss typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where installation of underground cable may be conducted
- installation equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on cable installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to splice and terminate optical fibre cable within an optical telecommunications transmission environment for new installations or upgrades of an optical backbone or access network, to achieve greater bandwidth and capacity required by emerging technology convergence for next generation networks (NGN).

It applies to technical staff who splice and terminate optical fibre cable for telecommunications projects for commercial or industrial fibre to the premises (FTTP) non-mechanical splicing installations.

All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for splicing | 1.1 Select safety equipment to protect self and public according to enterprise guidelines and work health and safety (WHS) practices<br>1.2 Confirm layout of installation according to physical conditions at site and relevant legislation, codes, regulations and standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Inform appropriate personnel of identified hazards on worksite<br>1.4 Locate other services from relevant authorities according to enterprise guidelines and safe practices<br>1.5 Test for dangerous gases and place guards around open manholes following WHS and environmental requirements<br>1.6 Obtain approval for alterations to design according to enterprise guidelines |
| 2. Check existing optical fibre cable | 2.1 Verify that cable was installed according to installation plan and visually inspect cable for signs of sheath damage<br>2.2 Maintain minimum bend ratios according to manufacturer's specifications to prevent cable damage and signal degradation<br>2.3 Secure cable according to safe industry practice to avoid cable and sheath damage |
| 3. Splice optical fibre cable | 3.1 Verify fibre is not live using appropriate equipment to maintain safe working practice and ensure correct fibre has been identified<br>3.2 Prepare cable end to expose optical fibres according to splicing method and manufacturer's specifications<br>3.3 Prepare and splice fibres using safe industry practice according to enterprise specifications<br>3.4 Test splice joint to manufacturer's and design requirements |
| 4. Terminate optical fibre cable | 4.1 Select connector unit to suit terminating frame according to design specifications<br>4.2 Terminate cable using type of termination specified in plan and according to manufacturer's specifications<br>4.3 Test termination for transmission loss and strength, and re-terminate if transmission loss exceeds manufacturer's specifications<br>4.4 Install protection devices on connectors to protect from exposure and contaminants<br>4.5 Label and lay up cables in enclosure according to manufacturer's instructions and enterprise guidelines |
| 5. Finish job and report | 5.1 Remove waste and reinstate site according to enterprise guidelines<br>5.2 Prepare reports, including test results and alterations to plans, according to enterprise policy<br>5.3 Notify appropriate personnel of work completion and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1, 2.2, 3.2, 3.4, 4.1, 4.2, 4.5, 5.2, 5.3 | • Understands familiar texts of limited complexity that may incorporate graphs, tables and charts<br>• Recognises the structures and distinguishing features of a range of familiar text types |
| Writing | 1.3, 1.4, 1.6, 5.2, 5.3 | • Interrelates ideas and information and some support material when writing about familiar topics |
| Oral Communication | 1.3, 1.4, 1.6, 5.3 | • Demonstrates an awareness of the need to vary structure, style, tone and vocabulary to meet the requirements of the audience, context and purpose |
| Numeracy | 2.2 | • Interprets and comprehends whole numbers and familiar or routine fractions, decimals and percentages |
| Navigate the world of work | 1.1, 1.5, 2.1, 2.3, 3.1-3.4, 4.1-4.3, 4.5, 5.1-5.3 | • Takes responsibility for decisions about when and how to complete tasks and coordinate with others<br>• Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Get the work done | 1.5, 1.6, 2.2, 3.1, 3.3, 3.4, 4.1-4.5, 5.1 | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Initiates standard procedures when responding to familiar problems within immediate context |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL208 Splice and terminate optical fibre cable for | ICTCBL2065B Splice and terminate optical fibre cable for carriers | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| carriers and service providers | and service providers | Performance Criteria clarified | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- splice, terminate and test optical fibre cable, applying safety precautions when working with laser based systems
- splice at least 12 fibres and house in industry recognised enclosures according to manufacturer's instructions
- install a mechanical splice connector (fast or quick connector)
- install a pigtail that is fusion spliced to the cable fibre
- complete relevant documentation to manufacturer's and design requirements
- provide report documenting the installation and test results to client
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify causes of signal strength loss in optical fibre
- identify colour coding of fibres
- summarise relevant safety standards applicable to the operation of laser products
- describe the features and operating requirements of test equipment for optical fibre cable
- identify industry and organisational policies and procedures when splicing optical fibre cable
- describe the information required to operate equipment according to a test specification
- identify optical fibre equipment and summarise the manufacturer's requirement for safe operation
- describe the safety precautions when working with laser based systems


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- identify specific WHS requirements relating to the activity and site conditions, including hazardous gases
- discuss techniques for types of termination including:
  - direct termination
  - fusion splicing
- describe test methods and performance requirements
- identify types of optical cable
- state the relevant authorities that may be involved in optical fibre installations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to:

- special purpose tools, equipment and materials
- sites where splicing and termination of optical fibre cable may be conducted
- optical fibre testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on optical fibre cable installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL209 Joint and terminate coaxial cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install, joint and terminate coaxial cable in the customer access network (CAN) environment for emerging technologies using high speed broadband and the delivery of cable television services on a client's premises for domestic, commercial or industrial installations.

It applies to technical staff whose work involves jointing and terminating coaxial cable used in all telecommunications applications, including convergence technologies of telephony, data, video and multimedia as part of next generation networks (NGN).

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install and joint coaxial cable | 1.1 Confirm approval for site access with client prior to site entry and comply with site security arrangements and relevant legislation, codes, regulations and standards<br>1.2 Read and interpret client’s installation specifications and physical |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | conditions at site to determine layout of job<br>1.3 Locate and identify adjoining other services according to enterprise guidelines and work health and safety (WHS) practices<br>1.4 Test for and respond to presence of dangerous gases in underground enclosures according to enterprise guidelines<br>1.5 Undertake approved alterations to design according to enterprise guidelines |
| 2. Verify placement and secure coaxial cable | 2.1 Use safety equipment to protect self and public according to enterprise guidelines and WHS<br>2.2 Maintain coaxial cable segregation to industry standard requirements<br>2.3 Protect integrity of coaxial shield cable to ensure no loss of performance<br>2.4 Place cable in position with sufficient slack to allow termination and maintain minimum bend radius according to manufacturer's specifications<br>2.5 Follow installation designs to install cable safely without damage to cable or client's premises<br>2.6 Maintain radio frequency (RF) signal strength by installing cable lengths within manufacturer's or design specifications<br>2.7 Locate securing hardware to reduce cumulative effect on cable wave shape properties and attach cable ties to minimise cable damage |
| 3. Joint coaxial cable | 3.1 Strip coaxial cable according to specifications to required length using appropriate tools<br>3.2 Select appropriate kit to match type of coaxial cable in use and jointing method according to manufacturer's recommendations<br>3.3 Joint cable and ensure jointing fitting retains segregation of conductor and shield<br>3.4 Seal all joints according to manufacturer's specifications |
| 4. Terminate coaxial cable | 4.1 Prepare coaxial cable for termination according to specifications using appropriate tool<br>4.2 Select connectors to match type of coaxial cable in use and use terminating method recommended by manufacturer<br>4.3 Verify connector fitting retains segregation of conductor and shield<br>4.4 Terminate connectors to torque as recommended by manufacturer to prevent RF leakage |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.5 Test connectors to mating specifications using gauge tester<br>4.6 Maintain continuous ground on terminations and waterproof seal to preserve cable integrity |
| 5. Complete installation operation | 5.1 Place cables in enclosure and lay up according to manufacturer's instructions and enterprise guidelines, and check that no safety hazards are evident<br>5.2 Place other services according to enterprise guidelines<br>5.3 Reinstate site and remove waste and debris for disposal according to environmental requirements and to maintain safe worksite conditions |
| 6. Complete installation administration | 6.1 Complete reports according to enterprise policy<br>6.2 Note alterations to plans using appropriate symbols |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2-1.5, 2.5, 2.6, 3.2, 3.4, 4.2, 4.4, 6.1, 6.2 | • Reads familiar texts fluently, automatically recognising most everyday words and some specialised vocabulary |
| Writing | 1.5, 6.1, 6.2 | • Sequences writing to produce cohesive text and uses layout consistent with text type |
| Oral Communication | 1.1 | • Demonstrates awareness of choices for register, especially in situations that are familiar |
| Numeracy | 1.5, 2.4, 2.5, 3.1, 4.4, 4.5 | • Interprets and comprehends whole numbers and familiar or routine fractions, decimals and percentages<br>• Selects and uses appropriate tools, hand-held devices, computers and technological processes |
| Navigate the world of work | 1.1, 1.3-1.5, 2.1, 2.2, 2.4, 2.7, 4.5, 5.1, 5.3, 6.1 | • Takes responsibility for decisions regarding when and how to complete tasks, and coordinate with or delegate to others<br>• Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to |


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| | | |
|---|---|---|
| | | own work context, and draws attention to any issues that may affect self or others |
| Get the work done | 1.3-1.5, 2.2-2.6, 3.1-3.4, 4.1, 4.2, 4.4, 4.6, 5.2 | • Implements actions as per plan, makes slight adjustments if necessary, and addresses unexpected issues<br>• Automatically implements standard procedures for routine decisions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL209 Joint and terminate coaxial cable | ICTCBL2066A Joint and terminate coaxial cable | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL209 Joint and terminate coaxial cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine installation requirements, and check and prepare the site ready for coaxial cable installation
- demonstrate joint and termination of coaxial cable using specialised hand or power tools and equipment
- apply related work health and safety (WHS) requirements and work practices
- conduct signal strength tests and interpret results
- finalise cable activities and reinstate the site
- document work according to enterprise requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the range of coaxial cables and connectors and their application
- identify information required to operate equipment according to a test specification
- describe the features and operating requirements of test equipment
- identify the manufacturer’s requirements for safe operation of equipment
- discuss test methods and performance requirements
- describe typical issues and challenges that occur on site
- identify specific WHS requirements relating to the activity and site conditions, including site security
- describe the impact that other services may have on the installation work
- identify and describe the operation of tools relevant to working with coaxial cable


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- identify relevant legislation, codes of practice and other formal agreements and contracts that impact on the work activity.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to special purpose tools, equipment and materials. These include access to:

- sites where jointing coaxial broadband cable may be conducted
- joint testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on cable jointing and testing activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL210 Install a telecommunications service to a building

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install a telecommunications service to a building to provide a new service or a service upgrade.

It applies to individuals who work in technical roles that require bringing a telecommunications service from the broader network to a client's premises using metallic or optical cable or wireless connection.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare service installation | 1.1 Arrange access to site with client and obtain job specifications<br>1.2 Notify supervisor of identified safety hazards at worksite according to work health and safety (WHS) and environmental requirements<br>1.3 Use installation specifications to determine type of services, network cables and equipment required for installation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Select cables and equipment that comply with functionality and compatibility of existing installation<br>1.5 Select and obtain tools and equipment to carry out installation activity |
| 2. Install cable and equipment to building | 2.1 Locate, connect and check cables at entry into network for transmission quality and continuity where service to building exists<br>2.2 Install cable and equipment, and seal cable entry to building in safe manner according to installation plans and Australian Communications and Media Authority (ACMA) standards<br>2.3 Test overall functionality of new service to meet installation specifications<br>2.4 Rectify faults if required and minimise interruption to existing service in agreement with client<br>2.5 Install lightning protection, where required, according to enterprise guidelines and industry practice |
| 3. Complete records and clean up site | 3.1 Label cable pairs clearly to provide accurate identification according to manufacturer's, industry and client standards<br>3.2 Update records and plans with installation details to provide accurate record according to industry codes of practice and current Australian Standards<br>3.3 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions<br>3.4 Complete Telecommunications Cabling Advice (TCA) forms and present to client to obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 2.3 | • Interprets textual information from relevant sources to identify relevant and key information |
| Writing | 1.2, 3.1, 3.2, 3.4 | • Uses clear, specific and industry related terminology to complete workplace documentation |


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| | | |
|---|---|---|
| Oral Communication | 1.1 | • Articulates clearly using appropriate language for the environment<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.3 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.2, 1.3, 2.2, 2.5, 3.1-3.4 | • Complies with explicit policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.2, 2.4, 3.4 | • Identifies and follows accepted communication practices and protocols when liaising with clients, internal and external personnel on technical and operational matters |
| Get the work done | 1.1-1.5, 2.1, 2.2, 2.5, 3.1 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Applies standard diagnostic practices to identify and rectify faults |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL210 Install a telecommunications service to a building | ICTCBL2068A Install a telecommunications service to a building | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL210 Install a telecommunications service to a building

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare and install cable and equipment to a building complying with Australian Communications and Media Authority (ACMA), enterprise and government regulations
- conduct tests related to transmission quality and continuity of cables at network entry point
- label and document installation work, complying with industry codes of practice
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list information required to operate equipment according to a test specification
- describe features and operating requirements of test equipment
- outline legislation, codes of practice and other formal agreements that impact on the work activity
- summarise manufacturer's requirements for safe operation of equipment
- discuss WHS requirements and work practices associated with cable provision, including:
  - adequate warning signs
  - protective clothing and personal safety items
  - safety devices
- explain test methods and performance requirements
- discuss typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where telecommunications services may be installed
- installation and testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL211 Install an above ground equipment enclosure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the, skills and knowledge required to plan, build, install and earth an equipment enclosure for cabling provisioning on or above the ground.

It applies to individuals who work in technical roles in civil construction including the installation of enclosures such as pillars, cabinets, remote integrated multiplexers (RIM) and mobile equipment enclosures for new or upgrade network installations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to construct and install enclosure | 1.1 Obtain construction plan from appropriate personnel to scope work and arrange for site access<br>1.2 Notify appropriate personnel of identified safety hazards and other services at worksite<br>1.3 Obtain plant, tools, safety equipment and material to perform tasks safely and efficiently<br>1.4 Determine location and type of above ground enclosure specified |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | in construction plan required for project |
| 2. Build enclosure | 2.1 Use tools according to enterprise guidelines and work health and safety (WHS) regulations<br>2.2 Construct footings or foundations to construction design specifications<br>2.3 Construct enclosure to specifications given in construction design<br>2.4 Connect enclosure to earth according to construction plan and industry practice |
| 3. Complete project | 3.1 Complete reports according to enterprise policy and record alterations to plans using appropriate symbols<br>3.2 Recover obsolete materials and equipment, and return to appropriate point for disposal<br>3.3 Restore site according to requirements of enterprise or approving authority and to client satisfaction<br>3.4 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1-2.4 | • Interprets textual information from technical sources to identify relevant and key information |
| Writing | 1.2, 3.1, 3.4 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols |
| Numeracy | 1.4, 2.2, 2.3 | • Takes measurements and uses them for work layout and construction<br>• Make basic calculations appropriate for measuring and estimating materials for construction |
| Navigate the world of work | 1.2, 2.1, 3.1, 3.3 | • Complies with explicit policies and procedures, and legislative requirements relevant to own role |
| Interact with others | 1.1, 1.2, 3.3, 3.4 | • Identifies and follows accepted communication practices and protocols when liaising with clients and |


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| | | |
|---|---|---|
| | | internal and external personnel on technical and operational matters |
| Get the work done | 1.1, 1.3, 2.1-2.4, 3.2, 3.3 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL211 Install an above ground equipment enclosure | ICTCBL2131A Install an above ground equipment enclosure | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL211 Install an above ground equipment enclosure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare to install an enclosure using construction plans
- use appropriate tools and equipment to construct and connect an enclosure according to plans, specifications, and work health and safety (WHS) requirements
- complete reports and document alterations to plans as appropriate.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list the plant, tools and equipment required for construction
- describe enclosure construction methods
- describe footings and foundations
- read, interpret and make basic modifications to plans
- read and interpret legislation, codes of practice and other formal agreements that impact on the work activity
- identify specific WHS requirements relating to the activity and site conditions
- identify typical issues and challenges that occur on site.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where enclosure construction and connection may be conducted


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- construction tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on construction.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL212 Erect aerial cable supports

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes skills and knowledge required to erect cable supports in small aerial client installations and access networks where they may be required to do new installations, upgrades or maintain existing networks in domestic, commercial and industrial installations to deliver services in xdigital subscriber lines (xDSL), fibre to the home (FTTH) and hybrid fibre coaxial (HFC) networks.

It applies to individuals working as telecommunications linesmen and line installers who make use of aerial support structures and specialist tools.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements.

Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install aerial cable structure | 1.1 Obtain construction plan from appropriate personnel to scope work and arrange for site access |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Notify appropriate personnel of identified safety hazards at cabling worksite<br>1.3 Determine cable route from construction plan, identifying and avoiding other services<br>1.4 Obtain plant, tools, safety equipment and material to perform tasks safely and efficiently |
| 2. Install aerial support structures | 2.1 Use tools according to enterprise guidelines and work health and safety (WHS) regulations<br>2.2 Erect safety barriers according to enterprise guidelines to secure site<br>2.3 Excavate hole to specifications and according to enterprise guidelines for erection of mounting pole<br>2.4 Install pole using mechanical lifting devices according to enterprise guidelines<br>2.5 Install fixing structures on pole securely according to manufacturer's specifications<br>2.6 Install aerial fixing devices where support is other than pole according to enterprise guidelines |
| 3. Complete project | 3.1 Complete reports according to enterprise policy and record alterations to plans using appropriate symbols<br>3.2 Recover obsolete materials and equipment and return to appropriate point for disposal<br>3.3 Restore site according to requirements of enterprise or approving authority and to client satisfaction<br>3.4 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.3, 2.5, 3.1, 3.4 | • Interprets information from technical sources to identify relevant and key information |


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| | | |
|---|---|---|
| Writing | 1.2, 3.1 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols |
| Numeracy | 1.3, 2.3 | • Interprets scales and ratios on plans<br>• Performs basic calculations appropriate to measuring and estimating size |
| Navigate the world of work | 1.2, 2.1, 3.1, 3.3 | • Takes personal responsibility for adherence to legal, regulatory and organisational requirements relevant to own work context |
| Interact with others | 1.1, 1.2, 3.4 | • Identifies and follows accepted communication practices and protocols when liaising with clients and internal and external personnel on technical and operational matters |
| Get the work done | 1.1, 1.4, 2.1-2.6, 3.2, 3.3 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL212 Erect aerial cable supports | ICTCBL2132A Erect aerial cable supports | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL212 Erect aerial cable supports

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- install a pole and aerial fixing device after relevant authorities have been notified and approvals obtained prior to commencement
- demonstrate use of specialised hand or power tools and equipment for the installation of aerial cable supports safely
- apply work health and safety (WHS) requirements and work practices associated with the installation of aerial cable supports, including protective clothing and personal safety items, adequate warning signs and safety devices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the features and operating requirements of equipment
- describe the information required to operate equipment according to a specification
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- describe licence requirements for working at heights
- identify the manufacturer’s requirements for safe operation of equipment
- identify specific WHS requirements relating to the activity and site conditions
- describe test methods and performance requirements
- identify typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where aerial cable supports may be installed
- plant, tools and equipment to erect aerial supports currently used in industry
- relevant regulatory and equipment documentation that impacts on aerial support erection activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL213 Construct underground telecommunications infrastructure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes skills and knowledge required to construct underground telecommunications infrastructure made up of conduits and enclosures for cabling provisioning.

It applies to individuals in technical roles in civil construction whose work involves the installation of pits and pre-built enclosures with connecting pipes for underground telecommunications infrastructure.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to construct underground work | 1.1 Obtain construction design plan from appropriate personnel to scope work and arrange for site access<br>1.2 Notify appropriate personnel of identified safety hazards and other services<br>1.3 Obtain plant, tools and safety equipment to perform tasks safely |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and efficiently<br>1.4 Determine type of underground enclosure specified in construction design plan required for project |
| 2. Install enclosure | 2.1 Use tools according to enterprise guidelines and work health and safety (WHS) regulations<br>2.2 Place foundation of suitable material to provide safe and stable footing prior to installing underground enclosure in excavation<br>2.3 Place recognised barrier over construction where enclosure is to be installed over power cables according to enterprise requirements or agreements with other authorities<br>2.4 Install earth mat facility under enclosure where specified and required by enterprise<br>2.5 Install enclosure specified in construction design plan to manufacturer's specifications using specified materials |
| 3. Install connecting pipe works | 3.1 Install conduit in trench to enterprise specifications<br>3.2 Connect conduit to enclosure according to manufacturer's specifications and industry practice |
| 4. Complete project | 4.1 Complete reports according to enterprise policy and record alterations to plans using appropriate symbols<br>4.2 Recover obsolete materials and equipment, and return to appropriate point for disposal<br>4.3 Restore site according to requirements of enterprise or approving authority and to client satisfaction<br>4.4 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.5, 4.1 | • Interprets information from technical sources to identify relevant and key information |
| Writing | 4.1, 4.4 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan |


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| | | |
|---|---|---|
| | | symbols |
| Numeracy | 1.4, 2.4, 3.1 | • Interprets scales and ratios on plans<br>• Performs basic calculations appropriate to measuring and estimating size |
| Navigate the world of work | 1.2, 2.1-2.5, 3.2, 4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Interact with others | 1.1, 1.2, 4.4 | • Identifies and follows accepted communication practices and protocols when liaising with clients, internal and external personnel on technical and operational matters |
| Get the work done | 1.1, 1.4, 2.1-2.5, 3.1, 4.2, 4.3 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL213 Construct underground telecommunications infrastructure | ICTCBL2133A Construct underground telecommunications infrastructure | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL213 Construct underground telecommunications infrastructure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- interpret and apply design plans and prepare for construction
- install enclosures including pipe, pit and prefabricated manhole
- construct in two different soil types: sand, rock, soil or combination soil types
- shore an excavation site to meet enterprise and regulatory requirements
- demonstrate use of specialised hand or power tools and equipment normally used for excavation, pipe, conduit installation and site restoration safely
- complete the works and documentation
- apply related work health and safety (WHS) requirements and work practices associated with excavation, enclosure installation and site restoration.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the following elements of civil construction:
  - construction plant, tools and equipment operation
  - enclosure construction methods
  - foundations
  - plans
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify the manufacturer’s requirements for safe operation of equipment
- identify specific WHS requirements relating to the activity and site conditions
- identify typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where enclosure construction may be conducted
- construction equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on construction.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL214 Fix aerial cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes skills and knowledge required to install aerial cables in client and access networks. It involves installing, terminating and securing cables. Aerial cable installation may be for a new cable, a cable upgrade or a cable in need of repair.

It applies to individuals working as telecommunications linesmen and line installers who use support anchors and catenaries for new installations and upgrades, or to maintain existing networks in domestic, commercial and industrial installations to deliver services in x-digital subscriber line (xDSL), fibre to the home (FTTH) and hybrid fibre coaxial (HFC) networks.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for aerial cable installation | 1.1 Obtain construction plan from appropriate personnel to scope work and arrange for site access<br>1.2 Notify appropriate personnel of identified safety hazards at cabling worksite |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Determine cable route and type of cable from construction plan, identifying and avoiding other services<br>1.4 Obtain plant, tools, safety equipment and material to perform tasks safely and efficiently |
| 2. Install aerial cable | 2.1 Use tools according to enterprise guidelines and work health and safety (WHS) regulations<br>2.2 Install catenary wire, gantry wire or integral bearer cable (IBC) and tension to required specifications<br>2.3 Install cable according to current Australian Standards and enterprise guidelines, ensuring that no damage is caused and that physical characteristics of cable are maintained<br>2.4 Secure cable permanently to support structure using aerial fixing devices according to manufacturer's and enterprise guidelines<br>2.5 Number cables on towers according to enterprise guidelines |
| 3. Terminate, seal and secure aerial cable | 3.1 Terminate and seal cables according to manufacturer's specifications<br>3.2 Joint cable in suitable closures using enterprise guidelines<br>3.3 Loop and secure cable on support structure with bending radius tolerance for cable materials to reduce damage to conductors<br>3.4 Test cable for continuity and rectify fault if required<br>3.5 Record test results for future reference |
| 4. Complete project | 4.1 Complete reports on installation and design amendments and file according to enterprise requirements<br>4.2 Recover obsolete materials and equipment and return to appropriate point for disposal<br>4.3 Restore site according to requirements of enterprise or approving authority and to client satisfaction<br>4.4 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1, 1.3, 2.2, 2.3, 4.1 | • Interprets information from technical sources to identify relevant and key information |
| Writing | 1.2, 3.5, 4.1 | • Documents outcomes and changes to designs using industry relevant terminology |
| Numeracy | 1.3, 2.2, 2.5, 3.3 | • Interprets scales and ratios on plans<br>• Performs basic calculations required to take accurate measurements |
| Navigate the world of work | 1.2, 2.1, 2.3-2.5, 3.1, 3.2, 4.3 | • Takes personal responsibility for adherence to legal, regulatory and organisational requirements relevant to own work context |
| Interact with others | 1.1, 4.3, 4.4 | • Identifies and follows accepted communication practices and protocols when liaising with clients and internal and external personnel on technical and operational matters |
| Get the work done | 1.1-1.4, 2.1, 2.3-2.5, 3.1, 3.2, 4.2, 4.3 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems<br>• Determines and uses appropriate equipment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL214 Fix aerial cable | ICTCBL2134A Fix aerial cable | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL214 Fix aerial cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan the works and prepare the site
- install an aerial cable, including hauling aerial cable, cable securing and sealing
- demonstrate identification of safe support structures from pole status markings, visual inspection or approved testing procedures
- use specialised hand or power tools and equipment for installing aerial cable safely
- test the installation and document test result
- apply all related work health and safety (WHS) requirements and work practices, including documentation associated with installing aerial cable pole and ladder safety.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the features and operating requirements of cable test equipment
- describe the information required to operate equipment according to a test specification
- discuss installation of a range of aerial cable types
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify the relevant licence requirements for working at heights
- identify the manufacturer’s requirements for safe operation of equipment
- identify specific WHS requirements relating to the activity and site conditions
- describe test methods and performance requirements
- identify typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where aerial cable may be installed
- plant, tools and equipment to erect aerial cable currently used in industry
- relevant regulatory and equipment documentation that impacts on aerial cable installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL215 Joint metallic conductor cable in access network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes skills and knowledge required to joint metallic conductor cable on the service provider side of the network boundary in communications applications including digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to individuals working in technical roles who joint metallic conductor cable for indoor and outdoor installations on new installations and cable upgrades, and maintain infrastructure in domestic, commercial and industrial situations for service providers and asset owners.

All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for jointing metallic conductor cable for access network | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Arrange access to site according to required procedure<br>1.3 Inform appropriate personnel of existing and potential hazards on worksite<br>1.4 Review site plans and documentation<br>1.5 Select cable type and appropriate connectors for cable joint<br>1.6 Set up tools and equipment, and materials required for safe work practice<br>1.7 Obtain information on location of other services from relevant authorities |
| 2. Joint metallic conductor cable for access network | 2.1 Joint metallic cable following work health and safety (WHS) and environmental requirements<br>2.2 Perform relevant cable tests to ensure joint complies with site specifications, manufacturer's specifications, and relevant legislation, codes, regulations and standards<br>2.3 Rectify any cable faults<br>2.4 Record cable tests and any modifications required<br>2.5 Label and tag cable joint according to enterprise guidelines and industry practice |
| 3. Protect and alarm cable | 3.1 Pressurise cable and check for any leakage<br>3.2 Reconnect alarms, if applicable, according to enterprise guidelines<br>3.3 Remove waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions |
| 4. Complete records and clean up site | 4.1 Complete required records including alterations and notify client<br>4.2 Reinstate site according to client and company requirements<br>4.3 Present all records to appropriate personnel and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 1.7 | • Interprets information from technical sources to |


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| | | |
|---|---|---|
| | | identify relevant and key information |
| Writing | 1.3, 2.4, 2.5, 4.1 | • Documents outcomes and changes to records using industry relevant terminology |
| Numeracy | 3.1 | • Takes measurements and interprets results |
| Navigate the world of work | 1.1-1.3, 1.6, 1.7, 2.1, 2.2, 3.2, 3.3, 4.2 | • Takes personal responsibility for adherence to legal, regulatory and organisational requirements relevant to own work context |
| Interact with others | 1.2, 1.3, 1.7, 4.1, 4.3 | • Identifies and follows accepted communication practices and protocols when liaising with clients and internal and external personnel on technical and operational matters |
| Get the work done | 1.1-1.3, 1.5, 1.6, 2.1-2.3, 3.1, 3.3, 4.2 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL215 Joint metallic conductor cable in access network | ICTCBL2135A Joint metallic conductor cable in access network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL215 Joint metallic conductor cable in access network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- joint cable with appropriate connectors and according to specifications
- perform relevant cable tests to comply with site specifications and industry standards
- rectify any cable faults
- apply work health and safety (WHS) requirements and work practices associated with the jointing of metallic cable, including documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify Australian Communications and Media Authority (ACMA) competency requirements for Telecommunications Cabling Provider Rules
- describe the features and operating requirements of test equipment
- describe the information required to operate equipment according to a test specification
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify the manufacturer’s requirements for safe operation of equipment
- discuss safety precautions when working with cables
- identify specific WHS requirements relating to the activity and site conditions
- describe test methods and performance requirements
- identify typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where jointing metallic conductor cable may be performed
- cable testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on cable jointing activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL219 Apply safe technical work practices for cabling registration when configuring an ADSL circuit

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to practice safe installation, alteration and configuration of the carrier network termination device/asymmetric digital subscriber line (NTD/ADSL) filter and modem/mode 3 socket/cabling, for an alarm system connected to a monitoring station using a carrier line supporting an ADSL modem service, used for Open and Restricted Cabling Registration.

It applies to cablers, installers and technicians working in the field of installation, maintenance or upgrades of existing systems in voice, data or security systems, and in the context of technology convergence and digital subscriber line (DSL) technologies as applied in the telecommunications industry.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Build and test direct current (DC) and alternating current (AC) | 1.1 Identify any hazards and work health and safety (WHS) issues for safe worksite and notify appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| circuits and telephone earthing | 1.2 Connect series and parallel DC and AC circuit configuration following safe work practices<br>1.3 Choose appropriate test equipment and measure values of electrical quantities of circuits<br>1.4 Use calculations to verify measured values of electrical quantities in series and in parallel circuit configuration<br>1.5 Compare measured values to calculated values and determine reasons for any variations<br>1.6 Evaluate results and determine probable faults if relevant<br>1.7 Measure voltages present on telephone line and compare to exchange battery voltage<br>1.8 Measure resistance to earth, ensuring electrical earth in telecommunications installation |
| 2. Configure a safe ADSL circuit configuration with mode 3 connection | 2.1 Determine effects of bandwidth, frequency and attenuation on DSL circuits as used for broadband client access<br>2.2 Design and configure ADSL circuit from network boundary through to mode 3 socket for alarm system connected to monitoring station<br>2.3 Configure connection to ensure that ADSL circuit is not disconnected for safety reasons when alarm activation in conjunction with a mode 3 socket disconnects plain old telephone service (POTS) circuit<br>2.4 Use level 3 tester to verify correct termination and installation of digital transmission line |
| 3. Diagnose and rectify faults | 3.1 Determine urgency and impact of faults and required response timeframe for clearance<br>3.2 Identify type of fault and determine most probable causes of fault from data and historical trends where available<br>3.3 Select tools and test equipment relevant to system and type of fault<br>3.4 Diagnose fault in methodical and safe manner using suitable fault-finding technique<br>3.5 Isolate fault progressively to remove likely variables from diagnostic<br>3.6 Determine options to rectify fault and present to client for decision on rectification<br>3.7 Document test methods and results, and file with other system |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | installation records |
| 4. Alter existing services | 4.1 Identify existing and proposed cable systems for altering services to existing installation<br>4.2 Plan alterations to cause minimal disruption to ongoing client activity<br>4.3 Use appropriate tools to safely terminate telecommunications cables and outlets<br>4.4 Identify and rectify any cable fault<br>4.5 Carry out alterations in safe manner and according to both mandatory and recommended industry standards<br>4.6 Identify risks posed by contact with remote power feeding services<br>4.7 Test alteration and obtain sign off with client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.2, 4.7 | • Uses explicit strategies to make connections between information and ideas while reading |
| Writing | 3.6, 3.7 | • Interrelates ideas, information and some support material when writing about familiar topics |
| Oral Communication | 1.1, 3.6 | • Demonstrates awareness of choices for register, especially in situations that are familiar |
| Numeracy | 1.3-1.5, 1.7, 3.1, 3.2, 4.7 | • Uses 'in the head' and written methods to calculate, and uses calculation and technological processes and tools to undertake the problem solving process |
| Navigate the world of work | 1.1, 1.2, 2.1, 4.5, 4.6 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Get the work done | 1.3, 1.6, 2.1-2.4, 3.1-3.7, 4.1-4.4, | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues |


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| | | |
|---|---|---|
| | 4.7 | • Automatically implements standard procedures for routine decisions in response to familiar problems<br>• Understands when to take responsibility and when to notify others |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL219 Apply safe technical work practices for cabling registration when configuring an ADSL circuit | ICTCBL2139B Apply safe technical work practices for cabling registration when configuring an ADSL circuit | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL219 Apply safe technical work practices for cabling registration when configuring an ADSL circuit

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate the use of asymmetric digital subscriber line (ADSL) concepts in application and design
- demonstrate fault-finding techniques to locate cabling faults in telecommunications networks
- solve calculations for direct current (DC) and alternating current (AC) electrical problems
- apply digital transmission principles and testing
- demonstrate the use of ADSL test equipment
- comply with all related work health and safety (WHS) requirements and work practices in the alteration of existing client services.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss WHS issues and practices relating to ADSL circuits and working with electricity
- describe typical electrical faults, fault-finding techniques and the type and use of testing equipment, including:
  - multimeter to measure direct current (DC) voltage, current and resistance
  - continuity tester to check continuity wiring
  - testing of open circuits and short circuits
  - ADSL test set
- identify the appropriate tools used in ADSL cabling


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- describe the types of cable terminations used for a range of telecommunications cable applications
- outline the following:
  - ADSL circuitry and configurations
  - digital transmission concepts, including installation practices and testing
  - procedures in altering existing services, including sign off
  - the distinction between analog and digital signals.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to:

- special purpose tools, equipment and materials
- a site where altering of existing services for a client may be conducted
- appropriate AC and DC testing equipment
- manufacturer's documentation and equipment
- correct tools and measuring equipment currently used in industry.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL220 Install a cable lead-in

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes skills and knowledge required to install indoor and outdoor aerial and underground lead-ins for client installations of a new metallic or optical cable installation, or upgrade for an existing network or subsystem, or cabling infrastructure for convergence to next generation networks (NGN) digital reception and broadband.

It applies to technical staff who haul underground or fix aerial cable lead-in. They may make use of tension meters and hauling equipment. It can be applied to new installations and upgrades of telecommunications cabling projects in domestic, commercial and industrial installations.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for cable installation | 1.1 Prepare for given work according to industry standards<br>1.2 Arrange access to site according to required procedure<br>1.3 Inform appropriate personnel of identified hazards and safety |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | constraints on worksite<br>1.4 Obtain cable installation plan and set up installation equipment according to manufacturer's requirements<br>1.5 Select suitable protective clothing, tools and equipment, and safety equipment, and confirm support structures are safe |
| 2 Install aerial cable lead-in | 2.1 Identify and use safe support structures<br>2.2 Select type of cable bearer and determine need for separate catenary wire installation<br>2.3 Secure catenary wire or bearer wire permanently to support structure using aerial fixing devices, and adjust tension to meet relevant height and minimum sag requirements to required specifications<br>2.4 Secure cable safely to catenary wire, leaving cable loop on support structure<br>2.5 Terminate cable in client enclosure and aerial enclosure |
| 3 Install underground cable lead-in | 3.1 Run push rod through pipe and attach cable for hauling<br>3.2 Haul cable using lubricant, cable slippers or rollers to ensure no sheath damage when hauling at correct tension into and out of enclosures<br>3.3 Provide sufficient cable allowance in enclosures for jointing and maintenance requirements<br>3.4 Terminate cable in client enclosure and pit enclosure |
| 4 Seal and secure cable | 4.1 Seal cable ends to prevent ingress of foreign material<br>4.2 Secure cable loop on support structure to minimise damage to conductors<br>4.3 Weather seal building entry points where appropriate<br>4.4 Fit over voltage protection devices to all cables with metallic component where required |
| 5 Complete tasks on site | 5.1 Record any approved alteration to original design and return to appropriate personnel<br>5.2 Complete appropriate records and sign reports where required according to enterprise policy<br>5.3 Restore site to original condition and dispose of waste in environmentally safe manner<br>5.4 Notify client and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 2.3, 5.1, 5.2, 5.4 | • Uses a range of strategies to facilitate comprehension |
| Writing | 5.1, 5.2 | • Completes records according to organisational requirements |
| Oral Communication | 1.3, 5.1, 5.4 | • Use language and non-verbal features appropriate to context |
| Numeracy | 2.3 | • Interprets and comprehends a range of everyday mathematical information that is embedded in familiar and routine texts |
| Navigate the world of work | 1.1-1.3, 1.5, 2.1, 2.3, 5.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Get the work done | 1.1, 1.4, 2.2-2.5, 3.1-3.2, 3.4, 4.1-4.4 | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL220 Install a cable lead-in | ICTCBL2163A Install a cable lead-in | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL220 Install a cable lead-in

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- install at least one type of aerial cable and one type of underground cable, including placing and securing cables on support structures and building faces for both internal and external locations
- haul, secure and seal cables
- perform visual inspection to identify safe support structures from pole status markings
- terminate cables at the client and network ends of aerial and underground installations
- complete and provide a report documenting the installation and test results to client
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the features and operating requirements of testing equipment
- identify and apply industry standards and codes of practice for cabling
- identify common types of cable used in telecommunications
- identify and describe manufacturer’s requirements for selection and safe operation of tools and equipment
- identify workplace procedures reflecting the requirements of legislation, codes of practice and other formal agreements that impact on the work activity
- identify specific WHS hazards and safety requirements relating to the activity and site conditions
- list and describe the safety equipment, both personal and worksite related, required for safe work practices
- describe the issues relating to the safe use of support structures
- identify the appropriate fixing devices used in cable lead-in work


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- describe termination methods and performance requirements
- identify typical issues and challenges that occur on site
- identify and explain the purpose of appropriate records and documentation required for work activity.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to:

- special purpose tools, equipment and materials
- sites where aerial and underground cable lead-ins may be conducted
- equipment and personal protective equipment currently used in industry
- testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to safely install, maintain and modify communications cabling required according to the Australian Communications and Media Authority's (ACMA) ‘Restricted’ Cabling Provider Rule on customers premises for cabling terminated on sockets and network termination devices (NTD) of indoor and external metallic cable in either aerial or underground situations.

It applies to individuals who may provide services to connect telecommunications devices including telephony systems, security alarm panels and fire control panels in either a new cable installation or upgrade of cable capacity for an existing network or subsystem for convergence to Next Generation Networks (NGN) applications. Customers are typically domestic premises, small offices, home offices and small business premises. Generally large commercial and industrial premises are excluded except in special circumstances where the cabling is behind a compliant device and is not via jumperable distributors or patch panels.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an ACMA-accredited registrar.

## Pre-requisite Unit

ICTWHS204 Follow work health and safety and environmental policies and procedures

ICTTEN201 Use electrical skills in telecommunications work

## Unit Sector

Telecommunications – Cabling



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# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan for restricted cabling work | 1.1 Prepare for restricted cabling work within the ACMA regulatory environment, cabling environment, cable type, cable identification, termination systems, earthing and protection, records and according to requirements of relevant legislation, codes, regulations and standards<br>1.2 Identify building infrastructure which places critical constraints on cabling<br>1.3 Develop strategies to manage other infrastructure in relation to cabling<br>1.4 Notify appropriate personnel of safety hazards at the cabling work site |
| 2. Manage remote power feed | 2.1 Identify and avoid the risks posed by contact with remote power feeding services when performing cabling activity<br>2.2 Make site safe by identifying remote power feeding services which operate at above telecommunications network voltage (TNV) inside customer premises |
| 3. Install cables and protective earth wires | 3.1 Install cables according to manufacturer's application specifications, including tension and bending stress requirements<br>3.2 Identify and avoid sources of possible damage to cable, including hot pipes, sharp edges and cable burn<br>3.3 Allow sufficient excess at cable ends to facilitate termination<br>3.4 Place and secure cable to maintain safety and interference segregation according to legislative and industry standards<br>3.5 Install cable fasteners with correct tension to prevent cable sheath damage or transmission impairment and trimmed flush to prevent risk of personal damage<br>3.6 Install underground cables to minimum depth of cover and segregation from hazardous electrical and other services according to current Australian Standards<br>3.7 Install underground cables excluding blown fibre tube systems to incorporate a blocking agent within the cable to prevent the ingress of water<br>3.8 Install aerial cables to minimum clearance, segregation from hazardous electrical and other services and minimum height |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements according to current Australian Standards<br>3.9Install over-voltage protection devices according to Australian Standards to all cable pairs, where required, to suppress voltage surges and protect from earth potential rise (EPR) hazards and protectively earth the devices<br>3.10 Protect earth wire insulation against damage and segregate protective earths according to relevant legislative and industry standards |
| 4. Terminate and test cables and earth wires | 4.1 Remove cable sheath to allow for correct termination length and without damage to underlying conductors and their insulation<br>4.2 Install Network Termination Device (NTD) modules according to manufacturer's specifications and cable pairs neatly and sequentially fanned for termination<br>4.3 Terminate conductors according to recommended colour code sequence using appropriate termination tools in the manufacturer's specified manner<br>4.4 Earth cable shield, if applicable, to manufacturer's specifications, relevant industry codes of practice and Australian Standards<br>4.5 Conduct visual inspection to confirm termination colour code sequence has been followed prior to end-to-end testing of wire and pair termination integrity<br>4.6 Terminate earth wire according to industry accepted codes of practice and Australian Standards<br>4.7 Ensure earth wire continuity throughout and observe interface requirements with electrical systems<br>4.8 Test earthing installation for continuity, insulation resistance and conductive resistance according to accepted industry standards and Australian Standards<br>4.9 Confirm compatibility of alterations with existing systems and test new work both in isolation and when integrated with existing systems |
| 5. Inspect cable route to ensure correct separations | 5.1 Inspect separations along the entirety of the cable route and rectify separations which do not comply with regulations<br>5.2 Install barriers to achieve separations where sufficient spatial separation cannot be met |
| 6. Create records | 6.1 Provide the client with a job sign-off, telecommunications cabling advice form, at the completion of each cabling task<br>6.2 Complete NTD record cards for the work undertaken |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 7. Monitor work activity | 7.1 Supervise cablers not holding appropriate registration for the task to ensure cabling activity is according to legislative requirements for safety and network integrity including the relevant Australian Standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1, 3.8 - 3.9, 4.2 - 4.4, 4.8, 6.1 - 6.2, 7.1 | • Recognises and responds to some conventions of complex texts<br>• Recognises when unknown words are essential to meaning and uses a range of decoding strategies to identify them |
| Writing | 1.4, 6.1 - 6.2 | • Uses a legible handwriting style or a computer font appropriate to the audience and purpose |
| Oral Communication | 1.4 | • Demonstrates awareness of choices for register, especially in situations that are familiar |
| Numeracy | 3.1, 3.6, 3.8 - 3.9, 4.1, 4.8, 4.9 | • Relies substantially on hands-on (concrete) and real life materials, personal experience and prior knowledge to make estimations and check the reasonableness of processes<br>• Identifies appropriate tools and uses them to take measurements<br>• Interprets information based on results of technical tests |
| Navigate the world of work | 1.1, 1.4, 3.4, 3.6, 3.8 - 3.10, 4.2, 4.4, 4.8, 7.1 | • Takes personal responsibility for adherence to legal/regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Get the work done | 1.1 - 1.3, 2.1 - 2.2, 3.1 - 3.7, 3.9 - 3.10, 4.1, 4.4 - 4.7, 4.9, 5.1 - 5.2 | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems |


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# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Termination systems must include: | • network termination device<br>• Australian modular socket<br>• Mode 3 alarm socket<br>• RJ45, RJ12 or RJ11 modular socket.<br>(Note: jumperable distributors are not included in this requirement). |
| Earthing and protection must include: | • earthing for protection<br>• surge suppression. |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule | Updated to meet Standards for Training Packages.<br><br>Performance criteria clarified.<br><br>Prerequisite units added. | No equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with ICT Information and Communications Technology Training Package version 3.1.<br>New release provides updates to Elements and Performance Criteria. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- complete a cabling installation and termination for the following:
  - three different types of telephone sockets:
    - Australian modular socket
    - RJ45, RJ12 or RJ11 modular socket
    - Mode 3 alarm socket
  - one network termination device (NTD) completion of TCA1 compliance forms and NTD records
- apply cable conductor identification codes
- conduct and interpret cable test results
- interpret and apply standards and regulations
- comply with all related work health and safety (WHS) requirements and work practices
- meet Australian Communications and Media Authority's (ACMA) requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:


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- discuss the basic electrical principles of - insulation, resistance, capacitance, induction - as causes of, impedance, attenuation and cross-talk
- identify Australian Communications and Media Authority's (ACMA) cabling provider rules, cabler registration rules, regulations and standards
- describe the regulatory environment in which cabling can be carried out including:
  - accredited registrars and registration
  - ACMA
  - Certified Components List
  - labelling requirements
- describe the customer cabling environment for which restricted cabling may be required for internal, external, above ground or below ground installation
- identify and describe the various cable types, their identifiers, termination systems, separations, support systems and fastening techniques used for communications cabling
- describe the features and operating requirements of recognised cabling specific industry test equipment
- describe the information required to operate equipment according to a test specification
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify the manufacturer’s requirements for safe operation of equipment
- identify specific workplace health and safety (WHS) requirements relating to the activity and site conditions
- describe test methods and performance requirements
- describe the typical issues and challenges that occur on site
- summarise the mandatory and workplace records required when installing communications cabling
- describe the installation requirements for underground and aerial cables including:
  - minimum depth of cover (below ground)
  - segregation from hazardous electrical and other services
  - earthing requirements
  - compliance with current Australian Standards
- describe the design parameters for underground cables in regard to the purpose they will serve and for the prevention of water ingress.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to special purpose tools, equipment and materials. These include:

- access to a site on which communications cabling activities may be carried out
- cabling and field equipment currently used in industry
- licensing requirements and other site related documentation.


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Note: All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media (ACMA) accredited registrar. Assessment by a Telecommunications Industry Training Advisory Board (TITAB) registered assessor is recommended for this unit.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to safely install, maintain and modify customer premises communications cabling required according to Australian Communications and Media Authority's (ACMA) 'Open' Cabling Provider Rule for small installations connected to sockets, and larger commercial and industry installations involving many lines, multi-pair cables, backbone cabling, multi-story buildings and advanced termination modules and distributors.

It applies to individuals who provide services in telephony, carrier modems or multiplexers, private modems or data systems operating over a category one or two twisted pair metallic customer cable in a specific customer location and install, maintain or modify new cable or upgrade cable capacity either, indoor, external, underground or aerial cabling on private and public property for an existing network or subsystem, or cabling infrastructure for convergence to Next Generation Networks (NGN).

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Pre-requisite Unit

ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

## Unit Sector

Telecommunications – Cabling


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# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan open cabling work | 1.1 Prepare for open cabling work according to the ACMA regulatory environment, cabling environment, cable type, cable identification, termination systems, earthing and protection, records and relevant legislation, codes, regulations and standards<br>1.2 Identify building infrastructure which places critical constraints on cabling<br>1.3 Develop strategies to manage other infrastructure in relation to cabling<br>1.4 Notify appropriate personnel of identified safety hazards at cabling worksite |
| 2. Manage remote power feed | 2.1 Identify and avoid the risks posed by contact with remote power feeding services when performing cabling activity<br>2.2 Make site safe identifying remote power feeding services which operate at above telecommunications network voltage (TNV) inside customer premises |
| 3. Install and modify cable support, earthing and termination infrastructure | 3.1 Install fixings and cable support structures of adequate strength, safely and aligned with the environment according to manufacturer's and customer's specifications<br>3.2 Secure catenary supports to building structure and tension, where necessary, to ensure cable weight can be carried in operating conditions with interference and safety segregation maintained including adherence to current Australian Standards<br>3.3 Install protective earthing of metal work to industry standards where required<br>3.4 Inspect installed support structure to ensure cable will not be exposed to damage during installation and general operation<br>3.5 Position terminating equipment and fixing to accepted industry codes of practice, standards and customer requirements<br>3.6 Inspect back-mount and outlet layout for compliance to manufacturer's specifications and allow adequate work space for ease of access and avoid overlaying<br>3.7 Segregate incoming and outgoing cables for ease of access and avoid overlaying |
| 4. Install cables and | 4.1 Install cables according to manufacturer's application |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| earth wires | specifications, including tension and bending stress requirements<br>4.2 Identify and avoid sources of possible damage to cable, including hot pipes, sharp edges, cable burn, kinks, crushing or stretching<br>4.3 Allow sufficient excess at cable ends to facilitate termination<br>4.4 Label telecommunication outlet ends of cable uniquely to match identifier at originating location<br>4.5 Place and secure cable to maintain safety and interference segregation according to legislative and industry standards<br>4.6 Install cable fasteners with correct tension to prevent cable sheath damage or transmission impairment and trimmed or fitted flush to prevent risk of personal damage<br>4.7 Install aerial cables supported by catenaries in external environment to meet minimum above ground clearances and clearances from hazardous electrical services according to current Australian Standards<br>4.8 Install underground cables to minimum depth of cover and segregation from hazardous electrical and other services according to current Australian Standards<br>4.9 Install cables underground (excluding blown fibre tube systems) to incorporate a blocking agent within the cable to prevent the ingress of water<br>4.10 Install over-voltage protection devices to all cable pairs, where required, according to current Australian Standards, to suppress voltage surges with the devices protectively earthed<br>4.11 Conduct a visual inspection to verify telecommunications reference conductor (TRC)/ communications earthing system (CES)/ earth wire insulation is protected against damage and TRC/CES/ protective earths segregated according to relevant industry and legislative standards and current Australian Standards |
| 5. Terminate and test cables and earth wires | 5.1 Remove cable sheath to allow for correct termination length and without damage to underlying conductors and their insulation<br>5.2 Install terminating modules to different telecommunications cables according to manufacturer's specifications and cable pairs neatly and sequentially fanned for termination<br>5.3 Terminate conductors according to recommended colour code sequence using appropriate termination tools in the manufacturer's specified manner<br>5.4 Earth cable shield, if applicable, to manufacturer's specifications, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | relevant industry codes of practice and current Australian Standards<br>5.5 Conduct visual inspection to confirm termination colour code sequence has been followed prior to end-to-end testing of wire and pair termination integrity<br>5.6 Terminate earth wires with connectors recommended by manufacturers according to accepted industry codes of practice and current Australian Standards<br>5.7 Ensure earth wire continuity throughout and observe interface requirements with electrical systems<br>5.8 Test earthing installation for continuity, insulation resistance and conductive resistance according to accepted industry standards including current Australian Standards<br>5.9 Confirm compatibility of alterations with existing systems and test new work both in isolation and when integrated with existing systems<br>5.10 Test installed cable continuity after termination |
| 6. Inspect cable route to ensure correct separations | 6.1 Inspect separations along the entirety of the cable route and rectify separations which do not comply with regulations<br>6.2 Install barriers to achieve separations where sufficient spatial separation cannot be met |
| 7. Evaluate earthing needs for cable systems on customer premises | 7.1 Locate existing earthing systems in customer premises and analyse the earthing needs of cable products<br>7.2 Calculate the upper and lower limits of resistance for a variety of cable system earths using relevant cable characteristics |
| 8. Label earthing systems | 8.1 Identify label requirements for telecommunications earthing systems<br>8.2 Attach label to earthing systems according to industry regulations |
| 9. Create or update cable plans and records | 9.1 Document installation details on record sheets and plans and store according to customer requirements<br>9.2 Label cable pairs clearly to provide an accurate identification according to manufacturer's, industry and client standards<br>9.3 Record cabling details in cable pair record books to provide an accurate record according to industry codes of practice and current Australian Standards<br>9.4 Complete telecommunications cabling advice (TCA) forms |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 10. Monitor work activity | 10.1 Supervise cablers not holding appropriate registration for the task to ensure installation and maintenance activity comply with legislative requirements and industry standards for safety and network integrity including current Australian Standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.1, 5.3, | • Recognises the structures and distinguishing features of a range of familiar text types |
| Writing | 8.2, 9.1, 9.2, 9.3, | • Sequences writing to produce cohesive text and uses layout consistent with text type |
| Oral Communication | 1.4, 10.1 | • Demonstrates awareness of choices for register, especially in situations that are familiar |
| Numeracy | 3.2, 4.1, 4.3 | • Interprets and comprehends whole and familiar or routine fractions, decimals and percentages when measuring and preparing cables for installation |
| Navigate the world of work | 1.1, 3.1, 3.2, 4.6, 4.7, 6.1, 9.2, 10.1 | • Takes personal responsibility for adherence to legal/regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.2, 3.1-3.7, 4.1-4.7, 5.1-5.7, 6.1, 6.2, 7.1, 8.1, 8.2, | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule | ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule | Updated to meet Standards for Training Packages<br><br>Performance criteria clarified | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with ICT Information and Communications Technology Training Package version 3.1.<br>New release provides updates to Elements and Performance Criteria. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 2.0. |

## Performance Evidence

Evidence of the ability to:

- identify the correct telecommunications cable by its colour identifier
- terminate systems at both distributor and outlet locations
- install and terminate one jumperable distributor (campus distributor or building distributor) with a capacity of 100 pair or greater
- terminate one non-jumperable distributor (Local Distributor)
- terminate at least one 50 pair and one 4 pair data cable, including accurate completion of installation records, drawing alterations and compliance forms
- place cables on support structures and building faces for both internal and external locations
- secure cables with appropriate fasteners for the above locations
- demonstrate work practices which avoid cable damage
- install at least one common type of earthing system used in customer premises for cabling systems
- read and interpret drawings related to cable layouts, outlet location, cable coding system, and identifiers and distributor locations
- conduct and interpreting cable test results
- interpret and apply relevant legislation, codes, regulations and standards
- comply with all work, health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.


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# Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify Australian Communications and Media Authority's (ACMA) cabling provider rules, cabler registration rules, regulations and standards
- describe the features and operating requirements of recognised cabling specific industry test equipment
- describe the regulatory environment in which cabling can be carried out including:
  - accredited registrars and registration
  - ACMA
  - Certified Components List
  - labelling requirements
- describe the customer cabling environment for which cabling registration may be required for internal, external, above ground or below ground installation
- describe the information required to operate equipment according to a test specification
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify and describe the various cable types, their identifiers, termination systems (including jumperable and non-jumperable distributor), separations, support systems and fastening techniques used for telecommunications cabling
- describe important documentation and records required when cabling
- identify the manufacturer requirements for safe operation of equipment
- identify and describe earthing and protection strategies and technologies relevant to different cabling applications
- identify specific WHS requirements relating to the activity and site conditions
- describe test methods and performance requirements
- identify typical issues and challenges that occur on site
- describe devices for a range of telecommunications cabling applications, including, ethernet data systems, audio and video systems, security systems and fire protection systems
- define where integral bearer wires are required according to current Australian Standards
- describe underground cable minimum depth of cover and segregation from hazardous electrical and other services according to current Australian Standards
- describe cable blocking agents within used to prevent the ingress of water underground (excluding blown fibre tube systems)
- describe the feature of cables designed for underground use that may be laid in conduit trenches or direct buried
- describe the responsibilities and process for supervising communications installation works.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to:

- a site on which communications cabling activities may be carried out
- a jumperable distributor (campus distributor or building distributor) with a capacity of 100 pair or greater
- a patched distributor
- a 50 pair and 4 pair data system
- use of cabling and field equipment currently used in industry
- relevant regulatory and site related documentation.

Note: All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media (ACMA) accredited registrar. Assessment by a Telecommunications Industry Training Advisory Board (TITAB) registered assessor is recommended for this unit.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL238 Install, maintain and modify customer premises communications cabling: ACMA Lift Rule

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to safely install, maintain and modify communications cabling required on a customer's premises, according to Australian Communications and Media Authority (ACMA) Lift Cabling Provider Rule.

It applies to individuals who are qualified licensed electricians working in technical roles for lift installations on new or upgrade installations for an existing network or subsystem for convergence to next generation network (NGN) applications.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an ACMA accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Work within constraints imposed by customer premises and ACMA regulatory | 1.1 Prepare for lift cabling work according to regulatory environment, cabling environment, cable type, cable identification, termination systems, earthing and protection, records and relevant legislation, codes, regulations and standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| environment | 1.2 Identify building infrastructure that places critical constraints on cabling when undertaking typical lift cabling installation from local distributor (LD) to lift car socket<br>1.3 Develop strategies to manage other infrastructure in relation to cabling<br>1.4 Notify appropriate personnel of identified safety hazards at cabling worksite |
| 2. Manage remote power feed | 2.1 Identify and avoid risks posed by contact with remote power feeding services when performing cabling activity<br>2.2 Make site safe by identifying remote power feeding services that operate at above telecommunications network voltage (TNV) inside customer premises |
| 3. Install and modify cable support, earthing and termination infrastructure | 3.1 Install fixings and cable support structures of adequate strength safely and align with environment according to manufacturer's and customer's specifications<br>3.2 Secure catenary supports to building structure and tension where necessary to ensure cable weight can be carried in operating conditions with interference and safety segregation maintained, including adherence to current Australian Standards<br>3.3 Install protective earthing of metal work to industry standards where required<br>3.4 Inspect installed support structure to ensure cable will not be exposed to damage during installation and general operation<br>3.5 Position terminating equipment and fixing to accepted industry codes of practice, current Australian Standards and customer requirements<br>3.6 Inspect control cubicles, travelling cable supports, junction boxes, line isolator units, backmount and outlet layout, to ensure compliance with manufacturer's specifications, allow adequate work space for ease of access and avoid overlaying<br>3.7 Segregate incoming and outgoing cables to ensure ease of access, and avoid overlaying |
| 4. Install cables and earth wires | 4.1 Install lift communications cable from LD to lift car socket<br>4.2 Install cables according to manufacturer's application specifications, including tension and bending stress requirements<br>4.3 Identify and avoid sources of possible damage to cable, including hot pipes, sharp edges, cable burn, kinks and stretching<br>4.4 Allow sufficient excess at cable ends to facilitate termination |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.5 Place and secure cable to maintain safety and interference segregation according to legislative and industry standards<br><br>4.6 Install cable fasteners with correct tension to prevent cable sheath damage or transmission impairment, and trim flush to prevent risk of personal damage<br><br>4.7 Install aerial cables supported by catenaries in external environment to meet minimum above ground clearances and clearances from hazardous electrical services according to current Australian Standards<br><br>4.8 Install and secure travelling cables to maintain safety and according to relevant legislative, industry and manufacturer's standards<br><br>4.9 Install local isolation units (LIU) as required according to current Australian Standards<br><br>4.10 Install over-voltage protection devices to all cable pairs, where required, to suppress voltage surges, with devices protectively earthed and according to current Australian Standards<br><br>4.11 Protect earth wire insulation against damage with protective earths segregated according to relevant industry and legislative standards |
| 5. Terminate and test cables and earth wires | 5.1 Remove cable sheath to allow for correct termination length and without damage to underlying conductors and their insulation<br><br>5.2 Install terminating modules according to manufacturer's specifications, ensuring cable pairs are neatly and sequentially fanned for termination<br><br>5.3 Terminate conductors according to recommended colour code sequence using appropriate termination tools in manufacturer's specified manner<br><br>5.4 Earth cable shield, if applicable, to manufacturer's specifications and relevant industry codes of practice, including current Australian Standards<br><br>5.5 Undertake visual inspection to confirm termination colour code sequence has been followed, prior to end to end testing of wire and pair termination integrity<br><br>5.6 Terminate earth wires with connectors recommended by manufacturer according to relevant industry codes of practice, including current Australian Standards<br><br>5.7 Maintain earth wire continuity throughout to meet interface requirements with electrical systems<br><br>5.8 Test earthing installation for continuity, insulation resistance and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | conductive resistance according to relevant industry standards, including current Australian Standards<br>5.9 Confirm compatibility of alterations with existing systems and test new work both in isolation and when integrated with existing systems |
| 6. Inspect cable route to ensure correct separations | 6.1 Inspect separations along entire cable route and rectify separations that do not comply with regulations<br>6.2 Install barriers to achieve separations where sufficient spatial separation cannot be met |
| 7. Evaluate earthing needs for cable systems on customer premises | 7.1 Locate existing customer earthing systems and analyse earthing needs of cable systems<br>7.2 Calculate upper and lower limits of resistance for variety of cable system earths using relevant cable characteristics |
| 8. Label earthing systems | 8.1 Identify label requirements for all types of earthing systems<br>8.2 Attach label to earthing systems according to industry regulations |
| 9. Create or update cable plans and records | 9.1 Document installation details on record sheets and plans, and store according to customer requirements<br>9.2 Label cable pairs clearly to provide accurate identification according to manufacturer's, industry and customer standards<br>9.3 Record cabling details in cable pair record books to provide accurate record according to industry codes of practice and current Australian Standards<br>9.4 Complete Telecommunications Cabling Advice (TCA) form |
| 10. Monitor work activity | 10.1 Maintain close supervision of cablers not holding appropriate registration for task to ensure installation and maintenance activity is strictly according to legislative requirements and industry standards for safety and network integrity, including all current Australian Standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1, 8.1 | • Interprets complex technical information, legislation, codes, regulations and standards to identify key requirements |
| Writing | 1.4, 9.1-9.4 | • Completes required documentation to meet customer, organisational and legislative requirements using industry relevant terminology |
| Oral communication | 10.1 | • Delivers clear and specific instructions and confirms understanding using questioning and active listening |
| Numeracy | 7.2 | • Takes measurements and interprets results |
| Navigate the world of work | 1.1, 2.1, 2.2, 3.2, 3.5, 4.5, 4.7-4.11, 5.4, 5.6, 6.1, 8.2, 10.1, | • Takes responsibility for adherence to legal, regulatory and organisational requirements relevant to own work context, including supervising the work of others |
| Interact with others | 1.4, 10.1 | • Identifies and follows accepted communication practices and protocols when liaising with customers, internal and external personnel on technical and operational matters |
| Get the work done | 1.2, 1.3, 5.2, 5.3, 7.1 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Implements actions as per plan, making adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL238 Install, maintain and modify customer premises communications cabling: ACMA Lift Rule | ICTCBL2138B Install, maintain and modify customer premises communications cabling: ACMA Lift Rule | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL238 Install, maintain and modify customer premises communications cabling: ACMA Lift Rule

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- install a lift cabling system from local distributor (LD) via a traveling cable to a lift car socket, including accurate completion of installation records, drawing alterations and compliance forms
- read and interpret cable drawings and plans for locations and terminations
- apply cable conductor identification codes
- conduct and interpret cable test results
- interpret and apply related regulations and industry codes
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify Australian Communications and Media Authority (ACMA) competency requirements for Telecommunications Cabling Provider Rules
- describe the features and operating requirements of test equipment
- describe the information required to operate equipment according to a test specification
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify the manufacturer’s requirements for safe operation of equipment
- explain protection earthing
- describe the features of lift construction and the types of cables required
- describe the types of cable used for manual controlled fire services


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- identify and describe cables and the types of cabling
- identify and describe common distributors
- outline specific WHS requirements relating to the activity and site conditions
- identify typical issues and challenges that occur on site.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- a site on which lift communications cabling activities may be carried out
- cabling and field equipment currently used in industry
- licensing requirements and other site related documentation.

Note: All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media (ACMA) accredited registrar. Assessment by a Telecommunications Industry Training Advisory Board (TITAB) registered assessor is recommended for this unit.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL301 Install, terminate and certify structured cabling installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to place, secure and terminate structured cabling for indoor and outdoor installations and to certify the installation within a domestic, commercial or industrial client's premises.

It applies to technical staff who install, terminate and certify structured cabling installations for communications applications including digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation of structured cabling | 1.1 Confirm client requirements and ensure compliance with relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Inform appropriate personnel of identified safety hazards on worksite<br>1.4 Organise tools and cabling products equipment for given work<br>1.5 Erect barriers according to safety requirements<br>1.6 Select cable type and match structured cabling to installation environment and client requirements<br>1.7 Verify proposed route to meet manufacturer's specifications and industry standards |
| 2. Install structured cable | 2.1 Place and secure correct type of cable following work health and safety (WHS) and environmental requirements, and according to accepted industry practice and standards<br>2.2 Maintain cable and services separations in runs and cross overs to meet manufacturer and industry standards<br>2.3 Install structured cabling to industry standards<br>2.4 Minimise twist ratio defects to avoid accumulation effect on structured cable performance<br>2.5 Fit over-voltage protection devices to all cables and metallic components where required |
| 3. Terminate structured cable | 3.1 Terminate cable according to accepted industry practice and standards<br>3.2 Maintain correct twist ratio to optimise system performance at rated level<br>3.3 Use correctly rated termination hardware with appropriate termination tool to ensure integrity and performance of termination<br>3.4 Earth cable shield to manufacturer's specifications and relevant industry standards if applicable |
| 4. Certify system performance to required level and complete documentation for client | 4.1 Test installation and termination to comply with certification requirements<br>4.2 Record and verify system performance promptly where required<br>4.3 Authorise and issue appropriate documentation to client to certify system performance and complete records where required<br>4.4 Reinstate site to client's satisfaction and dispose of waste in environmentally safe manner<br>4.5 Notify client and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.7, 4.2, 4.5 | • Integrates new ideas and information with existing understanding<br>• Recognises the structures and distinguishing features of a range of familiar text types |
| Writing | 1.2, 1.3, 4.2, 4.3 | • Sequences writing to produce cohesive text |
| Oral Communication | 1.1-1.3, 4.5 | • Uses clear language and concepts, and tone and pace appropriate for the audience and purpose |
| Numeracy | 3.2 | • Interprets and comprehends whole numbers and familiar or routine fractions, decimals and percentages |
| Navigate the world of work | 1.1-1.3, 1.5, 1.7, 2.1-2.3, 3.1, 3.3, 4.1-4.4 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Interact with others | 4.3 | • Recognises the purpose of various communications directly relevant to own role |
| Get the work done | 1.2-1.4, 1.6, 1.7, 2.1-2.5, 3.1-3.4, 4.1, 4.2 | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems<br>• Understands when to take responsibility and when to notify others |

# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Over-voltage protection devices requirements ***must comply with:*** | • ACMA standards<br>• enterprise or local environmental hazard<br>• manufacturer. |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL301 Install, terminate and certify structured cabling installation | ICTCBL3009B Install, terminate and certify structured cabling installation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL301 Install, terminate and certify structured cabling installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- install, terminate and certify a structured cabling installation to industry standards, applying related work health and safety (WHS) requirements and work practices
- install termination hardware
- conduct a termination test and interpret the results
- verify compliance with manufacturer's installation specifications and warranties
- provide a report certifying the installation and test results to the client.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify Australian Communications and Media Authority (ACMA) competency requirements for Telecommunications Cabling Provider Rules
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify and describe the application of industry standards on cable bending, anchors, tension, twist and labelling
- list and describe the tools and equipment commonly used in cable installations and testing
- describe the features and operating requirements of test equipment
- describe the types and structure of cable and termination hardware used in communications installations
- describe the information required to operate equipment according to a test specification
- identify the manufacturer's requirements for safe operation of equipment
- identify specific WHS hazards and requirements relating to the activity and site conditions
- describe test methods and performance requirements


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- describe the different types of records and documentation that may be required for certification and reporting
- identify typical issues and challenges that occur on site.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to special purpose tools, equipment and materials. These include access to:

- sites where installation, termination and certification of structured cabling may be conducted
- testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on installation.

Note: All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media (ACMA) accredited registrar. Assessment by a Telecommunications Industry Training Advisory Board (TITAB) registered assessor is recommended for this unit.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL302 Install and terminate optical fibre cable on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install and test optical fibre cable on a customer's premises for communications applications using a range of terminations that may include direct termination, fusion splicing and mechanical splicing.

It applies to technical staff who place, secure and terminate optical fibre cable in new installations and upgrades or maintain existing networks in domestic, commercial and industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Prepare for installation of optical fibre cable | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Arrange access to site according to required procedure<br>1.3 Inform appropriate personnel of identified hazards on worksite<br>1.4 Organise tools, cabling products, equipment and materials for given work<br>1.5 Match optical fibre cable type and connectors to installation environment and customer requirements<br>1.6 Check proposed route and bend ratios to meet manufacturer's specifications and industry standards<br>1.7 Test cable on drum for optical continuity if required |
| 2 Install, terminate and test optical fibre cable | 2.1 Install cable following work health and safety (WHS) and environmental requirements, and complying with manufacturer's specifications and industry standards<br>2.2 Join cable and perform type of termination specified in plan using safe work practices and according to manufacturer's specifications<br>2.3 Test joint for transmission loss and strength and re-terminate joint if transmission loss exceeds manufacturer's specifications<br>2.4 Record all measurements |
| 3 Remove fibre hazards from work area | 3.1 Clean work area thoroughly to minimise risk of injury from loose glass fibre<br>3.2 Dispose of waste safely according to relevant environmental requirements<br>3.3 Restore worksite to customer's satisfaction |
| 4 Document installation | 4.1 Update plans and records with details of installation and test results<br>4.2 Notify customer of work completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.5, 1.6, 2.2, 2.3, 4.1, 4.2 | • Recognises the structures and distinguishing features of a range of familiar text types |


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| | | |
|---|---|---|
| Writing | 1.2, 2.4, 4.1 | • Chooses appropriate text type to communicate relevant information and/or ideas effectively |
| Oral Communication | 1.2, 1.3 | • Demonstrates awareness of choices in register, especially in situations that are familiar |
| Numeracy | 1.6, 2.3, 2.4, 4.1 | • Interprets and comprehends whole numbers and familiar or routine fractions, decimals and percentages |
| Navigate the world of work | 1.1-1.3, 2.1, 2.2, 3.2 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Get the work done | 1.1, 1.2, 1.4-1.7, 2.1-2.3, 3.1, 3.3 | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems<br>• Understands when to take responsibility and when to notify others |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL302 Install and terminate optical fibre cable on customer premises | ICTCBL3010B Install and terminate optical fibre cable on customer premises | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL302 Install and terminate optical fibre cable on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- install, terminate and test optical fibre cable, applying safety precautions when working with laser based systems
- install a mechanical splice connector and fusion splice a pigtail to cable fibre
- complete relevant documentation to manufacturer's and design requirements
- provide report documenting the installation and test results to the customer
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe the application of relevant legislation, codes of practice and standards for optical fibre
- describe the various types of optical fibre cable and associated connectors, enclosures and required equipment
- describe the features and operating requirements of test equipment for optical fibre cable
- describe the information required to operate equipment according to a test specification
- identify the manufacturer's requirements for safe operation of optical fibre equipment
- describe safety precautions when working with laser based systems
- identify specific WHS requirements relating to the activity and site conditions
- describe the hazards associated with working with optical cable:
  - bare fibres
  - hazardous laser light
- describe test methods and performance requirements


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- identify issues relating to environmental work practices and the disposal of waste
- discuss techniques for types of termination, including:
  - direct termination
  - fusion splicing.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to special purpose tools, equipment and materials.

These include access to:

- sites where installation and termination of optical fibre cable may be conducted
- optical fibre testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on optical fibre cable installation activities.

Note: All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media (ACMA) accredited registrar. Assessment by a Telecommunications Industry Training Advisory Board (TITAB) registered assessor is recommended for this unit.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL303 Install and terminate coaxial cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install and terminate coaxial cable on client premises in communications applications, digital and analog, including master antenna television (MATV), cable television (CATV), closed-circuit television (CCTV), digital video broadcasting – terrestrial (DBVT), digital video broadcasting – satellite (DVB-S), data and video, including digital broadcasting, computer networks such as local area networks (LAN) and wide area networks (WAN), and multimedia.

It applies to technical staff who install and terminate coaxial cable for new installations, upgrades or the maintenance of existing networks in domestic, commercial and industrial installations on a client's premises.

All cabling work for clients in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA) accredited registrar.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install and terminate coaxial cable | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Arrange access to site according to required procedure<br>1.3 Inform appropriate personnel of identified hazards on worksite<br>1.4 Select coaxial cable type, connectors and manufacturer's tool to comply with installation environment and client requirements<br>1.5 Check proposed route and bend radius to meet manufacturer's specifications and industry standards<br>1.6 Test cable on drum for continuity and inspect visually for crushing and kinks<br>1.7 Discuss with client proposed method of installation and cable route, and adjust if necessary |
| 2. Install, terminate and test coaxial cable | 2.1 Maintain cable segregation to industry standards<br>2.2 Protect integrity of coaxial shield cable to ensure no loss of signal during operation and maintain bend ratios to not exceed manufacturer's specifications and industry standard<br>2.3 Install cable securing hardware to ensure cable is not crushed or kinked while maintaining cable manufacturer's bend radius<br>2.4 Install cable following work health and safety (WHS) and environmental requirements, and complying with manufacturer's specifications and industry standards<br>2.5 Terminate cable and perform type of termination specified in plan using safe work practices and according to manufacturer's specifications<br>2.6 Test termination for transmission loss and signal levels, and re-terminate the coaxial cable if the transmission loss exceeds the manufacturer's specifications<br>2.7 Record all measurements<br>2.8 Fit over-voltage protection devices to all cables with metallic component where required |
| 3. Remove termination waste from work area | 3.1 Clean work area thoroughly to minimise risk of injury from loose metal strands<br>3.2 Dispose of waste safely according to relevant environmental requirements<br>3.3 Restore worksite to client's satisfaction |
| 4. Document installation | 4.1 Update plans and records with details of installation and test results<br>4.2 Show client completed work and ensure work matches agreed method of installation and cable route |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.3 Notify client of work completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.5, 2.2, 2.5, 2.6, 4.1-4.3 | • Reads and interprets plans, specifications, and other documentation from a variety of sources and consolidates information |
| Writing | 2.7, 4.1 | • Accurately records information and prepares documentation using clear language and organisational formats and protocols |
| Oral Communication | 1.2, 1.3, 1.7, 4.2, 4.3 | • Demonstrates an awareness of the need to vary structure, style, tone and vocabulary to meet the requirements of the audience, context and purpose |
| Numeracy | 1.5, 1.6, 2.2, 2.3, 2.6, 2.7 | • Makes calculations appropriate for measuring and estimating materials<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.1-1.3, 2.1, 2.4, 2.5, 3.2 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, and draws attention to any issues that may affect self or others |
| Interact with others | 4.2 | • Recognises the purpose of various communications directly relevant to own role |
| Get the work done. | 1.1, 1.2, 1.4-1.7, 2.1-2.3, 2.5, 2.6, 2.8, 3.1, 3.3 | • Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Automatically implements standard procedures for routine decisions in response to familiar problems<br>• Understands when to take responsibility and when to notify others |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL303 Install and terminate coaxial cable | ICTCBL3011B Install and terminate coaxial cable | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL303 Install and terminate coaxial cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- install and terminate coaxial cable types including RG6 quad shielded coaxial cable
- install different connector types
- conduct and interpret test results
- verify the installation complies with manufacturer's specifications and warranties
- prepare a report for a client that documents the installation and test results
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and apply relevant legislation, regulations, standards and codes of practice associated with the installation of coaxial cables
- describe the features of types of coaxial cable and the manufacturer's specifications that apply
- describe the features and operating requirements of test equipment for coaxial cable
- describe the information required to operate equipment according to a test specification
- identify the manufacturer's requirements for safe operation of coaxial cable tools and equipment
- describe safety precautions when working with coaxial cable and radio frequency (RF) based systems
- identify specific WHS requirements relating to the activity and site conditions
- describe test methods and performance requirements
- discuss the types and techniques for connecting and termination of coaxial cable, including:


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  - compression termination
  - crimp termination
- summarise the function of over-voltage protection devices
- describe the transmission and propagation characteristics of coaxial cable
- discuss typical issues and challenges that occur on site.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to:

- special purpose tools, equipment and materials
- sites where installation and termination of coaxial cabling may be conducted
- equipment and personal protective equipment currently used in industry
- testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on installation activities.

Note: All client cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media (ACMA) accredited registrar. Assessment by a Telecommunications Industry Training Advisory Board (TITAB) registered assessor is recommended for this unit.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL304 Perform cable and system test on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to test the performance of copper telecommunications cable on customer premises for the purpose of commissioning, fault identification or routine maintenance. It includes ensuring a safe and secure work environment while work is being undertaken.

It applies to field officers, technicians or technical supervisors from carriers, contractors or other service providers carrying out domestic, commercial or industrial installations in both indoor and outdoor environments. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Prepare for cable and system test | 1.1 Establish purpose of test to be conducted on cables and systems with customer<br>1.2 Confirm customer's requirements and methods to comply with |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | relevant legislation, codes, regulations and standards<br>1.3 Select required tests according to site conditions, customer documentation and manufacturer's specifications<br>1.4 Arrange access to site and confirm service is available for testing<br>1.5 Select test equipment, tools and materials to meet required industry standards |
| 2 Perform tests | 2.1 Use tools and test equipment according to manufacturer's specifications<br>2.2 Perform work safely to remove risk of injury to operator, other users and equipment<br>2.3 Perform checks and adjustments to ensure operating environmental factors will not prejudice test results<br>2.4 Perform optical time domain reflectometer (OTDR) testing for multi-mode (MM) and single-mode (SM) fibre links, point to point networks or passive optical networks (PON) to determine fibre and event characteristics to meet customer or enterprise specifications and manufacturer's warranties<br>2.5 Perform structured cabling certification testing for categorised unshielded twisted pair (UTP) and shielded twisted pair (STP) copper links and point to point networks to determine cable system characteristics to meet customer or enterprise specifications and manufacturers' warranties |
| 3 Interpret test results and determine action | 3.1 Read test results accurately and compare with manufacturer's and site specifications for cable performance<br>3.2 Evaluate test results, taking into account measurement error margins against a known reference where appropriate<br>3.3 Assess test results fairly and accurately using verifiable data<br>3.4 Rectify any faults or escalate to appropriate level |
| 4 Complete records and clean up site | 4.1 Document test results and ensure test results remain current<br>4.2 Verify test results and provide to customer where required<br>4.3 Update site and installation files to ensure information on system performance is traceable<br>4.4 Reinstate site according to customer and company requirements<br>4.5 Notify customer and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.5, 2.1, 3.1-3.3, 4.2 | • Read, analyse and interpret plans, specifications and other documentation relevant to cable and systems testing |
| Writing | 1.4, 4.1, 4.3, 4.5 | • Prepare written technical reports and documentation for test results<br>• Record notes on communications and provide written feedback to customers |
| Oral Communication | 1.1, 1.2, 1.4, 4.5 | • Discuss parameters for the tests and provide oral feedback on results as required, using language appropriate to the understanding of the customer |
| Numeracy | 3.1-3.3, 4.2 | • Carry out calculations and analyse results as appropriate for the tests being performed |
| Navigate the world of work | 1.2, 2.2 | • Takes personal responsibility for following implicit policies, procedures and legislative requirements, particularly as they apply to safety |
| Interact with others | 1.1, 1.2, 3.4, 4.5 | • Selects and uses appropriate conventions and protocols when communicating with customers and co-workers |
| Get the work done | 1.1, 1.3-1.5, 2.1-2.5, 3.3, 3.4, 4.2, 4.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL304 Perform cable and system test on customer premises | ICTCBL3013A Perform cable and system test on customer premises | Updated to meet Standards for Training Packages<br><br>Added new Performance Criteria to clarify intent | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL304 Perform cable and system test on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- perform tests on at least 10 cables
- use a range of test devices including:
  - pulse echo tester
  - resistance fault locator
- use advanced multifunction test equipment to test:
  - an active public switched telephone network (PSTN) line
  - to perform a frequency response plot of a cable pair
- use exchange based testing equipment to test an active PSTN line
- identify at least 5 separate cable faults using test equipment
- interpret test results
- demonstrate appropriate methods of escalation of cable faults affecting service delivery
- report on the completed cable and system test.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise cabling types, connectors and cabling structures
- identify connections to carrier infrastructure or equipment, such as main distribution frame (MDF) or customer interface units (CIU)
- identify electrical and/or optical properties to be measured
- evaluate test results derived from test equipment and interpret test results against expected cable system performance specifications


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- describe typical performance parameters and faults that may be encountered in customer cabling and related connection and transmission equipment
- select types of equipment suitable for tests to be carried out.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where cable and system tests may be conducted
- cable and system testing equipment currently used in industry
- relevant regulatory and cable specifications that impact on cable and system testing installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL305 Hand over cable systems and equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to effectively transfer control of a newly installed or upgraded system to a client. It includes the transfer of information to the client and the completion of relevant documentation.

It applies to field officers, technicians or technical supervisors from carriers, contractors or other service providers completing domestic, commercial or industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Inform client of system functions and capacities | 1.1 Provide client with cables systems and equipment information<br>1.2 Demonstrate physical installation, cable system usage or equipment operation and answer client queries on system functions<br>1.3 Confirm variations to specifications with client |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2 Hand over records and documentation | 2.1 Update documentation and plans<br>2.2 Present complete and orderly records and system documentation to client<br>2.3 Adhere to all relevant company policies and relevant legislation, codes, regulations and standards |
| 3 Complete contract documentation | 3.1 Provide guarantees to client in required format where work is subject to guarantee<br>3.2 Present invoices to client to complete contractual arrangements<br>3.3 Obtain client's sign off to confirm acceptance of cabling work completed where required<br>3.4 Advise client of opportunities for system upgrades, additional services and training where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 2.2, 3.2, 3.3 | • Reads and interprets plans, specifications and technical information to pass on to client<br>• Evaluates information and products from a variety of sources to ensure appropriateness to client needs |
| Writing | 1.1, 1.3, 2.1, 2.2, 3.2, 3.4 | • Prepares documentation and correspondence using clear language and correct spelling and terminology<br>• Accurately records and completes information in organisational systems<br>• Records outcomes of communication with client for action |
| Oral Communication | 1.1-1.3, 2.2, 3.2-3.4 | • Interacts effectively in verbal exchanges, using active listening and questioning, to convey and clarify information<br>• Clearly explains detailed information using language, tone and pace appropriate to the audience |


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| | | |
|---|---|---|
| Numeracy | 1.3, 3.2 | • Performs mathematical calculations to present financial data and contract requirements, and to accurately process invoice |
| Navigate the world of work | 2.3 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 1.1-1.3, 3.1, 3.3, 3.4 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and workmates<br>• Recognises and accommodates basic differences and priorities of others |
| Get the work done | 2.2, 3.1, 3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses familiar digital technologies and systems to access information, enter data, present information and communicate with the client |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL305 Hand over cable systems and equipment | ICTCBL3014A Hand over systems and equipment | Updated to meet Standards for Training Packages<br><br>Minor change to title | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL305 Hand over cable systems and equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate and explain the cable and equipment system to the client
- present accurate records and system documentation to the client
- complete contract documentation
- respond to client requests.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise and describe cabling types, connectors and cabling structures
- describe the equipment on the client's premises
- describe typical performance parameters and faults that may be encountered with the client test equipment
- explain the various equipment types suitable for tests to be performed
- describe warranty information for equipment supplied and contractor work guarantees.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where cabling system and client equipment have been installed or upgraded
- relevant regulatory and equipment documentation that impacts on system and equipment installation activities.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL306 Locate and identify cable system faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to locate and identify cable system faults in communications cables at enterprise and client premises sites. The cable types may be telecommunications digital, voice, data and active format description (AFD) in digital TV cabling.

It applies to technical staff who are required to locate and rectify communications cable system faults, including local area networks (LAN) and wide area networks (WAN), master antenna television (MATV), cable television (CATV), closed-circuit television (CCTV), digital video broadcasting – terrestrial (DVB-T), digital video broadcasting – satellite (DVB-S), security alarm systems, fire systems, voice over internet protocol (VoIP) networks and radio communications. Their roles could include carrying out installation, maintenance and cable upgrades including structured cabling, fibre cabling, coaxial cabling and cable termination equipment.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| **ELEMENT** | **PERFORMANCE CRITERIA** |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1. Prepare to locate and rectify cable fault | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Inform appropriate personnel of existing and potential hazards on worksite<br>1.3 Arrange access to site according to required procedure<br>1.4 Establish type of cable and nature of fault from client for cable system<br>1.5 Select suitable testing tools and equipment and personal protective equipment to meet required industry standards |
| 2. Locate and diagnose cable fault | 2.1 Conduct appropriate test following work health and safety (WHS) and environmental requirements to identify type of cable fault<br>2.2 Isolate fault progressively to remove likely variables from assessment<br>2.3 Locate cable or cable termination equipment fault without undue interruptions to client activity in shortest possible time<br>2.4 Notify client of findings |
| 3. Rectify fault | 3.1 Present client with options to rectify fault<br>3.2 Advise client of costs of any repair not covered by service agreement<br>3.3 Conduct fault rectification, if client agrees, in a manner that is safe for repair team and client<br>3.4 Escalate any unresolved faults to other parties for resolution if required |
| 4. Complete documentation and clean up worksite | 4.1 Advise client of successful fault clearance and obtain sign off<br>4.2 Complete all records<br>4.3 Complete reports to justify fault diagnosis and rectification methodology if required<br>4.4 Remove all waste and debris from worksite and dispose of according to environmental requirements<br>4.5 Restore any changes made to worksite during fault repair to client’s satisfaction |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1 | • Interprets, consolidates and checks information and data<br>• Interprets technical documentation and test results from equipment manuals and specifications |
| Writing | 1.2, 1.4, 2.4, 3.1, 3.2, 3.4, 4.1-4.3 | • Accurately records and completes information in organisational systems<br>• Prepares documentation and correspondence using clear language and correct spelling and terminology |
| Oral Communication | 1.2, 1.4, 2.4, 3.1, 3.2, 3.4, 4.1, 4.5 | • Clearly explains detailed information using language, tone and pace appropriate to the audience<br>• Interacts effectively in verbal exchanges using active listening, questioning, and reading of verbal and non-verbal signals to convey and clarify information |
| Numeracy | 2.1, 3.2 | • Performs mathematical calculations to check, interpret and confirm numerical information |
| Navigate the world of work | 1.1, 1.3, 1.5, 2.1, 4.4 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Seeks advice and clarification for new activities |
| Interact with others | 1.2, 1.4, 2.4, 3.1, 3.2, 3.4, 4.1, 4.5 | • Uses a range of strategies and reads verbal and non-verbal signals to establish a sense of connection and build rapport with clients and workmates<br>• Selects and uses appropriate conventions and protocols when communicating to clients and co-workers in a range of work contexts |
| Get the work done | 1.3, 1.5, 2.1-2.3, 3.3, 4.4, 4.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Accepts responsibility for addressing less predictable problems and initiates standard procedures in response, applying problem solving processes in determining a solution<br>• Uses familiar digital technologies and systems to test cables, access information, enter data, present information and communicate with others |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL306 Locate and identify cable system faults | ICTCBL3015A Locate and identify cable system faults | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL306 Locate and identify cable system faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- identify different faults using checks, tests and fault-finding methodology
- determine and rank likely causes of fault
- provide the client with solutions for rectifying faults
- rectify the faults
- escalate unresolved faults to other parties for resolution
- comply with all related health and safety requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the Australian Communications and Media Authority (ACMA) competency requirements for Telecommunications Cabling Provider Rules
- recognise the features and operating requirements of test equipment
- describe how to operate equipment according to a test specification
- state the legislation, codes of practice and other formal agreements that impact on the work activity
- identify the manufacturer’s requirements for safe operation of testing instruments
- describe the specific work health and safety (WHS) requirements relating to the activity and site conditions
- select the test methods and identify the test performance requirements
- identify typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where cable system tests may be conducted
- fault-finding equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on cable system testing and fault-finding activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL307 Install underground enclosures and conduit

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install underground enclosures and conduit, either direct buried or in pits, for new or cable maintenance tasks in access networks for outdoor installations within client premises or in public locations permitted by the Australian Communications and Media Authority (ACMA).

It applies to technical staff who install underground infrastructure for new and upgraded telecommunications cabling for domestic, commercial or industrial clients.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation of underground enclosure and conduit | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure<br>1.3 Inform appropriate personnel of existing and potential hazards on worksite |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Verify location of proposed installation according to appropriate plans obtained from authorised personnel<br>1.5 Obtain information on location of other services from relevant authorities<br>1.6 Organise tools and equipment for given work and safe work practice<br>1.7 Erect barriers according to safety requirements |
| 2. Install enclosure and conduit | 2.1 Excavate site, maintaining stability and allowing ease of access<br>2.2 Construct or install enclosure or pit according to design specifications and following work health and safety (WHS) and environmental requirements<br>2.3 Install conduit to specifications and manufacturer's requirements, ensuring that internal surfaces are free from impediments and sharp edges due to cable hauling<br>2.4 Seal conduit entry into enclosure against ingress of foreign matter<br>2.5 Install cable support structure and access facilities in pits to specifications |
| 3. Restore site and complete documentation | 3.1 Complete backfill safely using suitable spoil and materials that ensure conduit protection<br>3.2 Reinstate site to identified requirements<br>3.3 Complete reports on installation and design amendments accurately and file promptly according to enterprise requirements<br>3.4 Notify client and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 1.5, 1.7, 2.2-2.5, 3.2 | • Critically analyses plans and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.3, 3.3, 3.4 | • Prepares documentation and correspondence using clear language and correct spelling and terminology |


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| | | |
|---|---|---|
| | | • Accurately records and completes information in organisational systems |
| Oral Communication | 1.3, 3.4 | • Interacts effectively in verbal exchanges using active listening, questioning and reading of verbal and non-verbal signals to convey and clarify information<br>• Clearly explains detailed information using language, tone and pace appropriate to the audience |
| Numeracy | 2.1-2.3, 2.5 | • Takes measurements and uses them for work layout and construction<br>• Make calculations appropriate for measuring and estimating materials for construction |
| Navigate the world of work | 1.1, 1.2, 2.2, 3.3 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.3-1.5, 3.4 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and workmates<br>• Identifies and explores differences in a diverse range of people in the work context and makes adjustments to communication in recognition of these differences |
| Get the work done | 1.2-1.4, 1.6, 1.7, 2.1-2.5, 3.1-3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL307 Install underground enclosures and conduit | ICTCBL3018A Install underground enclosures and conduit | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL307 Install underground enclosures and conduit

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- excavate for installation of an enclosure and conduit to industry standards, applying related health and safety requirements and work practices
- install enclosure and conduit according to specifications and industry standards
- restore site and complete documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise the features and operating requirements of excavation and installation to select appropriate equipment
- outline the manufacturer’s requirements for safe operation of equipment
- recognise the legislation, codes of practice and other formal agreements that impact on the work activity
- specify health and safety requirements relating to the activity and site conditions
- identify the components required for enclosures, pits and conduit
- describe the methods of installing enclosures and conduit as they apply to manufacturer's specifications and regulation
- identify typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where installation of underground enclosures and conduit may be conducted
- installation pits, enclosures and conduit currently used in industry
- relevant regulatory and equipment documentation that impacts on cable installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL308 Install underground cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install underground cable for all communications applications in access networks or client premises.

It applies to technical staff who install cable for new and upgrades of telecommunications cabling infrastructure for communications applications including broadcasting or reception (digital video broadcasting – terrestrial [DVB-T], digital video broadcasting – satellite [DVB-S], long term evolution [LTE]), closed-circuit television (CCTV), digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN), fibre optic networks and multimedia.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Prepare for underground cable hauling | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Verify cable installation requirements from plan and recognise constraints<br>1.4 Inform appropriate personnel of existing and potential hazards on worksite<br>1.5 Obtain information on location of other services from relevant authorities<br>1.6 Select suitable tools and equipment and protective equipment to meet required industry standards<br>1.7 Erect barriers according to safety requirements<br>1.8 Set up cable installation equipment according to manufacturer's requirements and enterprise guidelines<br>1.9 Clean debris and obstructions from conduit using suitable safe methods<br>1.10 Seal cable ends to exclude ingress of foreign matter |
| 2 Haul underground cable | 2.1 Run hauling feeder through conduit to enable cable hauling following work health and safety (WHS) and environmental requirements<br>2.2 Attach cable to hauling feeder according to manufacturer's specifications<br>2.3 Employ cable slippers or rollers to ensure no sheath damage when hauling into and out of enclosures<br>2.4 Lubricate cable and haul evenly at correct tension to reduce risk of cable damage<br>2.5 Maintain sufficient cable length allowance for jointing |
| 3 Seal and secure cable and complete all documentation | 3.1 Tag all cables to enable future identification<br>3.2 Seal cable ends to prevent ingress of foreign material<br>3.3 Place cable on supports in enclosures to reduce damage to conductors and enable ease of access for maintenance<br>3.4 Fit over voltage protection devices to all cables with metallic component where required<br>3.5 Complete reports on installation and design amendments accurately and file promptly according to client requirements<br>3.6 Reinstate site to identified requirements if required<br>3.7 Notify client and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.5, 1.8, 2.2 | • Interprets textual information from plans, specifications, standards and regulations to identify relevant and key information |
| Writing | 1.4, 1.5, 3.1, 3.5 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols<br>• Prepares documentation and correspondence using clear language and correct spelling and terminology |
| Oral Communication | 1.4, 1.5, 3.5, 3.7 | • Uses collaborative and inclusive techniques, including active listening and questioning, to convey and clarify information and to confirm understanding<br>• Clearly explains detailed information using language, tone and pace appropriate to the audience |
| Numeracy | 1.3, 2.5 | • Make calculations appropriate for measuring and estimating materials for hauling |
| Navigate the world of work | 1.1, 1.2, 1.6-1.8 | • Accepts responsibility and ownership for the task, and makes decisions on completion parameters and the need for coordination with others<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.2, 1.4, 1.5, 3.7 | • Uses a range of strategies and reads verbal and non-verbal signals, establishes a sense of connection and builds rapport with clients and workmates |
| Get the work done | 1.1-1.3, 1.6-1.10, 2.1-2.5, 3.3, 3.4, 3.6 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Accepts responsibility for addressing less predictable problems and initiates procedures in response, applying problem solving processes in determining a solution |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL308 Install underground cable | ICTCBL3019A Install underground cable | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL308 Install underground cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- haul underground cable to industry standards
- restore site and complete documentation
- comply with all related safety requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the Australian Communications and Media Authority (ACMA) regulation requirements for Telecommunications Cabling Provider Rules
- recognise the features and operating requirements of hauling equipment
- identify legislation, codes of practice and other formal agreements that impact on hauling
- outline the manufacturer's requirements for safe operation of hauling equipment
- specify health and safety requirements relating to the hauling and site conditions
- identify typical issues and challenges that occur on the worksite.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where installation of underground cable may be conducted
- installation equipment currently used in industry


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- relevant regulatory and equipment documentation that impacts on cable installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL309 Construct aerial cable supports

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install aerial cable supports in domestic, commercial or industrial communications applications, including digital and analog, telephony, data, video, digital broadcasting, master antenna television (MATV), cable television (CATV), closed-circuit television (CCTV), long term evolution (LTE) computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to technical staff installing aerial cable for client and carrier networks. Installations are completed outdoors on a client's premises using basic rigging procedures, methods and equipment for working safely at heights.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare site for installation | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Verify aerial cable support installation requirements according to appropriate plans and recognise constraints<br>1.4 Obtain information on location of other services from relevant authorities<br>1.5 Inform appropriate personnel of existing and potential hazards on worksite<br>1.6 Assess support structure as safe for normal working conditions<br>1.7 Set up cable support installation equipment according to manufacturer's requirements and enterprise guidelines |
| 2. Install aerial support structures | 2.1 Select type of aerial cable support for catenary wire or integrated bearer installation<br>2.2 Use basic rigging procedures, methods and equipment for working safely at heights<br>2.3 Erect barriers according to safety requirements<br>2.4 Construct support foundations to specifications and provide for safe and secure operation of support structure<br>2.5 Install aerial cable supports securely following work health and safety (WHS) and environmental requirements according to plan and manufacturer's specifications |
| 3. Restore site and complete documentation | 3.1 Reinstate site to identified requirements<br>3.2 Complete reports on installation and design amendments and file according to enterprise requirements<br>3.3 Notify client and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 1.7, 2.1, 2.4, 2.5 | • Analyses plans and other documentation from a variety of sources and consolidates information to determine construction requirements |
| Writing | 1.2, 1.5, 3.2 | • Accurately records and completes organisational documents and correspondence using clear language and |


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| | | |
|---|---|---|
| | | correct spelling, grammar and terminology |
| Oral Communication | 1.5, 3.3 | • Interacts effectively in verbal exchanges using active listening, questioning and reading of verbal and non-verbal signals to convey and clarify information<br>• Clearly explains detailed information using language, tone and pace appropriate to the audience |
| Numeracy | 2.4, 2.5 | • Takes measurements and use them for work layout and construction<br>• Make calculations appropriate for measuring and estimating materials for construction |
| Navigate the world of work | 1.1, 1.2, 1.4, 1.7, 2.3, 2.5, 3.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Seeks advice and clarification for new activities |
| Interact with others | 1.5, 3.3 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and work colleagues |
| Get the work done | 1.1-1.4, 1.6, 1.7, 2.2-2.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Accepts responsibility for addressing less predictable problems and applies problem solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL309 Construct aerial cable supports | ICTCBL3020A Construct aerial cable supports | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL309 Construct aerial cable supports

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare site for aerial cable support construction, ensuring all relevant authorities have been notified and approvals obtained prior to commencement
- install aerial support structures using pole and wall supports, applying all related health and safety requirements and work practices
- use rigging procedures, methods and equipment for working safely at heights
- restore site and complete documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the Australian Communications and Media Authority (ACMA) regulation requirements for Telecommunications Cabling Provider Rules as they apply to aerial cabling
- recognise the features and operating requirements of cable supports and installation equipment
- outline the legislation, codes of practice and other formal agreements that impact on aerial cable supports
- outline the requirements for safe operation of equipment
- describe the safety precautions required when working at heights
- specify other health and safety requirements relating to the activity and site conditions
- identify typical issues and challenges that occur on the work site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where construction of aerial cable supports may be conducted
- aerial support installation equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on aerial cable installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL310 Install aerial cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install aerial cable in domestic, commercial or industrial communications applications that include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN), master antenna television (MATV), cable television (CATV), closed-circuit television (CCTV), long term evolution (LTE) and multimedia.

It applies to technical staff installing aerial cable for client and carrier networks. Installations are completed outdoors on a client's premises using basic rigging procedures, methods and equipment for working safely at heights.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for aerial cable installation | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Verify location of proposed aerial cable installation requirements according to appropriate plans and recognise constraints<br>1.4 Obtain information on location of other services from relevant authorities<br>1.5 Inform appropriate personnel of existing and potential hazards on worksite<br>1.6 Select tools and equipment required for safe work practice<br>1.7 Erect barriers according to safety requirements<br>1.8 Assess support structure as safe for normal working conditions<br>1.9 Set up cable installation equipment according to manufacturer's requirements and enterprise guidelines |
| 2. Attach aerial cable to catenary | 2.1 Select type of cable bearer for catenary wire or integral bearer installation<br>2.2 Use basic rigging procedures, methods and equipment for working safely at heights<br>2.3 Secure catenary wire or integral bearer wire permanently to support structure using safe installation practices according to specifications<br>2.4 Haul and secure cable to catenary wire following health and safety and environmental requirements<br>2.5 Ensure minimum sag heights are achieved in accordance with Australian Communications and Media Authority (ACMA) and Australian Standards |
| 3. Seal and secure aerial cable | 3.1 Seal cable ends to prevent ingress of foreign material<br>3.2 Secure cable loop, if required, on support structure to reduce damage to conductors or fibres and to enable ease of access for maintenance<br>3.3 Weather seal building entry points where appropriate<br>3.4 Fit over-voltage protection devices to all cables with metallic component where required<br>3.5 Complete reports on installation and design amendments accurately and file promptly according to enterprise requirements |
| 4. Restore site and complete documentation | 4.1 Restore worksite to client's satisfaction<br>4.2 Complete reports on installation<br>4.3 Notify client and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 1.9, 2.1, 2.3, 2.4 | • Analyses plans, regulations and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.2, 1.5, 3.5, 4.2, 4.3 | • Prepares documentation and correspondence using clear language and correct spelling and terminology<br>• Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols |
| Oral Communication | 1.2, 1.4, 1.5, 4.3 | • Interacts effectively in verbal exchanges using active listening, questioning and reading of verbal and non-verbal signals to convey and clarify information |
| Numeracy | 1.9, 2.3 | • Make calculations appropriate for measuring and estimating materials for construction |
| Navigate the world of work | 1.1, 1.9, 2.4, 2.5, 3.5 | • Accepts responsibility and ownership for the task and makes decisions on completion parameters and the need for coordination with others<br>• Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 1.2, 1.4, 1.5, 4.3 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and workmates |
| Get the work done | 1.3, 1.6-1.9, 2.1-2.5, 3.1-3.4, 4.1 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements procedures for routine tasks, using formal decision making processes for more complex and non-routine situations |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL310 Install | ICTCBL3021A Install | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| aerial cable | aerial cable | Training Packages<br><br>Added extra performance criterion for clarification | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL310 Install aerial cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare site for installation, ensuring all relevant authorities have been notified and approvals obtained prior to commencement
- install aerial cable using effective practices
- use basic rigging procedures, methods and equipment for working safely at heights
- comply with all related health and safety requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the Australian Communications and Media Authority (ACMA) competency requirements for Telecommunications Cabling Provider Rules as they apply to aerial cable
- recognise the features and operating requirements of equipment used for aerial cabling and rigging
- identify legislation, codes of practice and other formal agreements that impact on aerial cabling
- outline the manufacturer's requirements for safe operation of installation and rigging equipment
- specify the health and safety requirements relating to aerial cabling and working at heights
- identify typical issues and challenges that occur on the worksite.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where aerial cable installation may be conducted
- aerial installation equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on aerial cable installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL311 Install systems and equipment on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install customer premises cabling and equipment for indoor and outdoor installations. This may include communications applications such as telephony, broadband data, video including digital broadcasting, and computer networks including local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to field officers, technicians or technical supervisors from carriers, contractors or other service providers who provide voice, data and security installation and maintenance services.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for customer premises systems and equipment installation | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure<br>1.3 Inform appropriate personnel of existing and potential hazards on |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | worksite<br>1.4 Verify location of proposed customer communications equipment installation according to plans obtained from authorised personnel<br>1.5 Develop installation plans to ensure minimal disruption to workplace and according to standards<br>1.6 Select suitable tools and equipment |
| 2. Install system hardware | 2.1 Install network equipment following work health and safety (WHS) and environmental requirements according to manufacturer's instructions<br>2.2 Confirm service interruption is within limits agreed with customer<br>2.3 Complete cable jumpering to distribution infrastructure and terminal equipment to specification<br>2.4 Document all installation drawings for customer |
| 3. Configure and test system | 3.1 Install software and, if required, configure system according to specifications<br>3.2 Test to verify system performance according to customer requirements<br>3.3 Record all test results |
| 4. Clean up worksite and compete documentation | 4.1 Remove and dispose of installation waste and debris from worksite according to environmental requirements<br>4.2 Restore worksite to customer's satisfaction<br>4.3 Complete all installation documents and present to customer<br>4.4 Notify customer and obtain signoff |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 1.5, 2.1, 2.3, 3.1, 3.2 | • Analyses and consolidates test results and data from a range of sources, against defined criteria and requirements<br>• Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates |


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| | | |
|---|---|---|
| | | information to determine requirements |
| Writing | 1.2, 1.3, 1.5, 2.4, 3.3, 4.3, 4.4 | • Prepares documentation and correspondence using clear language and correct spelling and terminology<br>• Accurately records and completes information in organisational systems |
| Oral Communication | 2.2, 4.3, 4.4 | • Interacts effectively in verbal exchanges using active listening, questioning and reading of verbal and non-verbal signals to convey and clarify information<br>• Presents complex information in formal situations using clear and convincing language, tone and pace appropriate for the audience and purpose |
| Numeracy | 2.1, 2.3, 3.2, 3.3 | • Make calculations appropriate for measuring and estimating materials for construction<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.1, 1.2, 1.5, 2.1, 4.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.2-1.4, 2.2, 4.2-4.4 | • Uses a range of strategies to establish a sense of connection and build rapport with customers and workmates |
| Get the work done | 1.1, 1.5, 1.6, 2.1, 2.3, 3.1, 3.2, 4.1, 4.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Accepts responsibility for addressing less predictable problems and initiates standard procedures in response, applying problem solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL311 Install systems and equipment on customer premises | ICTCBL3049A Install systems and equipment on customer premises | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL311 Install systems and equipment on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- read and interpret:
  - related floor plans
  - building plans
  - reflected ceiling plans
  - schematic drawings
- install customer premises equipment
- configure and test systems and equipment
- apply relevant regulations and standards
- comply with all related health and safety requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and select cabling types, connectors and cabling structures
- describe the connections to carrier infrastructure or equipment, such as main distribution frame (MDF) or asymmetric digital subscriber line (ADSL), multiplexer (MUX), integrated services digital network (ISDN), network termination device (NTD) or other carrier interface unit
- recognise electrical and/or optical properties to be measured
- explain the health and safety considerations for the works including:
  - electrical safety
  - lifting hazards
  - manufacturer’s requirements for safe operation of equipment


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- describe the equipment to be installed on the customer's premises
- identify and select the test methods and performance requirements for the installation
- identify typical issues and challenges that occur on the worksite.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- a site where installation of electronic equipment and customer cabling may be conducted
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL312 Cutover new systems and equipment on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to cutover new or upgraded systems and equipment on a customer premises. This may include indoor or outdoor installations of communications applications in telephony, broadband, data, video, radio frequency (RF) equipment, security and computer networks, including local area networks (LAN), wide area networks (WAN) and multimedia systems.

It applies to telecommunications trade workers carrying out new or upgrades of domestic, commercial or industrial systems and equipment at a customer's premises.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare system and equipment cutover | 1.1 Obtain relevant legislation, codes, regulations and standards<br>1.2 Scope work by obtaining project plan from appropriate personnel and arrange for site access to comply with security arrangements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Notify appropriate personnel of identified safety hazards at worksite<br>1.4 Determine cable route and type of cable and equipment from project plan, and identify and avoid other services<br>1.5 Obtain plant, tools and safety equipment, and material to perform tasks safely and efficiently<br>1.6 Prepare implementation plan with cutover tasks based on identified nature of job, and seek customer approval<br>1.7 Notify customer and network carrier of proposed cutover details and arrange for customer representation |
| 2. Cutover system or equipment into service | 2.1 Perform cutover tasks and connect network facilities according to approved plan, following health and safety and environmental requirements for given work<br>2.2 Test all cable connections, equipment and facilities as instructed in technical manuals and specifications<br>2.3 Evaluate test results to ensure proper system operation and performance, and rectify if required |
| 3. Complete project documentation | 3.1 Record test results for future reference, complete reports on cutover installation and design amendments according to enterprise requirements<br>3.2 Recover obsolete materials and equipment, and return to appropriate point for disposal<br>3.3 Restore site according to requirements of enterprise or approving authority and to customer satisfaction<br>3.4 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.4, 1.6, 2.1, 2.2, 3.3 | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements<br>• Analyses and consolidates test results and data from a range |


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| | | |
|---|---|---|
| | | of sources, against defined criteria and requirements |
| Writing | 1.3, 1.6, 1.7, 3.1 | • Prepares documentation and correspondence using clear language and correct spelling and terminology<br>• Documents outcomes of tests and changes to plans using industry relevant terminology and recognised plan symbols |
| Oral Communication | 1.3, 1.6, 1.7, 3.4 | • Interacts effectively in verbal exchanges using active listening, questioning and reading of verbal and non-verbal signals to convey and clarify information<br>• Interacts effectively in verbal exchanges, using active listening and questioning to convey and clarify information |
| Numeracy | 1.5, 1.6, 2.1-2.3 | • Make calculations appropriate for measuring and estimating materials for construction<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.1, 2.1, 3.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.3, 1.6, 1.7, 3.4 | • Selects and uses appropriate conventions and protocols when communicating with customers and co-workers in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection and build rapport with customers and co-workers |
| Get the work done | 1.2, 1.4-1.6, 2.1-2.3, 3.2, 3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Applies problem solving processes for determining solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL312 Cutover new systems and equipment on customer premises | ICTCBL3052A Cutover new systems and equipment on customer premises | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL312 Cutover new systems and equipment on customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- read and interpret plans and specifications
- develop and implement a cutover work plan
- install customer premises equipment
- configure and test systems and equipment
- apply relevant regulations and standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and select cabling types, connectors and cabling structures
- describe the legislation, codes of practice and other formal agreements that impact on the work activity
- describe the manufacturer’s requirements for safe operation of equipment
- explain the equipment requiring cutover at the customer's premises
- specify the health and safety requirements relating to the activity and site conditions
- identify and select the test methods and performance requirements
- describe the features and operating requirements of test equipment for cutover
- identify typical issues and challenges that occur on the worksite.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- a site where installation of customer premises equipment may be conducted
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL313 Modify and cutover cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to modify an infrastructure to cutover new cables into an existing indoor and outdoor, domestic, commercial or industrial cabling installation including communications applications in telephony, broadband, data, video, radio frequency (RF) equipment, security and computer networks, including local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to field officers, technicians or lineman installers from carriers, contractors or other service providers who upgrade coaxial or optical fibre cables as part of a hybrid fibre coaxial (HFC) network, a broadband access network or a large client private network.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for cable modification and cutover | 1.1 Obtain relevant legislation, codes, regulations and standards for given work<br>1.2 Scope work by obtaining project plan from appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and arrange for site access to comply with security arrangements<br>1.3 Notify appropriate personnel of identified safety hazards at worksite<br>1.4 Determine cable route and type of cable from project plan, and identify and avoid other services<br>1.5 Obtain plant, tools and safety equipment and material to perform tasks safely and efficiently<br>1.6 Prepare implementation plan with cutover tasks based on identified nature of job and seek client approval<br>1.7 Notify client and network carrier of proposed cutover details and proposed disruption to services<br>1.8 Undertake additional preparatory non-jointing work, as required, according to enterprise guidelines and site conditions<br>1.9 Select labour support required according to cutover tasks and available skills<br>1.10 Select technical equipment for cutover to suit materials being used, cable type and joint enclosure |
| 2. Joint and cutover cable | 2.1 Follow work health and safety (WHS) and environmental requirements for given work<br>2.2 Joint cable according to sequencing plan, materials, joint type, location, and enterprise and manufacturer’s guidelines<br>2.3 Test cable for performance and rectify any faults relating to cutover according to location, materials available and industry practice<br>2.4 Seal all joints according to cable type, location, and enterprise and manufacturer’s guidelines |
| 3. Complete project documentation | 3.1 Record test results for future reference, complete reports on cutover installation and design amendments to reflect existing cable layout according to enterprise requirements<br>3.2 Recover obsolete materials and return to appropriate point for disposal<br>3.3 Restore site according to requirements of enterprise or approving authority and to client satisfaction<br>3.4 Notify appropriate personnel completion of cutover and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.5, 1.9, 2.2, 2.3, 3.3 | • Analyses and consolidates test results and data from a range of sources, against defined criteria and requirements<br>• Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.6, 1.7, 3.1, 3.4 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols<br>• Prepares documentation and correspondence using clear language and correct spelling and terminology |
| Oral Communication | 1.2, 1.3, 1.6, 1.7, 3.4 | • Interacts effectively in verbal exchanges using active listening, questioning and reading of verbal and non-verbal signals to convey and clarify information |
| Numeracy | 1.4-1.6, 2.3 | • Make calculations appropriate for measuring and estimating materials for construction<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.8, 2.1-2.4, 3.1, 3.3 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.2, 1.3, 1.6, 1.7, 1.9, 3.4 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers |
| Get the work done | 1.1, 1.2, 1.4-1.6, 1.8, 1.10, 2.2-2.4, 3.2, 3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem solving processes in determining a solution |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL313 Modify and cutover cable | ICTCBL3067A Modify and cutover cable | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL313 Modify and cutover cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare for cutover
- rearrange cable
- conduct tests to determine success of cutover
- interpret results and rectify faults occurring as a result of cutover
- apply regulations and standards related to the cable rearrangement
- comply with all related health and safety requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise cabling types, connectors and cabling structures
- describe legislation, codes of practice and other formal agreements that impact on the work activity
- describe the manufacturer’s requirements for safe operation of equipment
- explain how the cutover of cable is performed on the client's equipment
- specify the health and safety requirements relating to the activity and site conditions
- describe the test methods and performance requirements
- describe the features and operating requirements of test equipment
- Identify typical issues and challenges that occur on the worksite
- describe the purpose of warranties and service level agreements (SLA).


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- systems and equipment involving cutover
- installation equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL314 Install network cable equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install indoor or outdoor, domestic, commercial or industrial network cable equipment at a client's premises or service provider access networks. This may include communications applications in telephony, broadband, data, video, radio frequency (RF) equipment, security and computer networks, including local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to technicians and lineman installers who install network cable equipment within the broadband infrastructure deployment where they may upgrade coaxial or optical fibre cables as part of a hybrid fibre coaxial (HFC) network, a broadband access network or a large client private network.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation | 1.1 Obtain relevant legislation, codes, regulations and standards for given work<br>1.2 Scope work by obtaining project plan from appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and arrange for site access to comply with security arrangements<br>1.3 Notify appropriate personnel of identified safety hazards at worksite<br>1.4 Determine cable route and type of network cable equipment from project plan, and identify and avoid other services<br>1.5 Obtain plant, tools and safety equipment and material to perform tasks safely and efficiently<br>1.6 Evaluate nature of job and infrastructure hierarchy from plan, and obtain approval from client on key features of installation to meet client requirements<br>1.7 Coordinate other parties to minimise disruption to services and down time<br>1.8 Segregate incoming and outgoing cables to facilitate access and avoid overlaying and backtracking of cable |
| 2. Install required cable and equipment support structure | 2.1 Evaluate existing equipment support structure and develop plan for additional support structure provisioning<br>2.2 Install additional cable support, equipment support structure and cable runs according to manufacturer's specifications, industry practice, and health and safety and environmental requirements<br>2.3 Determine cable route between rack and sub-rack and cable termination point to comply with client requirements, site limitations, equipment specifications and regulations<br>2.4 Install cabling infrastructure to interface rack and sub-rack according to installation instructions<br>2.5 Complete cabling requirements to support installation of equipment |
| 3. Install equipment and earthing protection | 3.1 Install lightning protection equipment where required, according to manufacturer's specifications and industry practice<br>3.2 Install earthing protection and line conditioning where required, according to relevant Australian Communications and Media Authority (ACMA), local power company and industry practice<br>3.3 Install equipment component into rack and sub-rack and complete connections according to manufacturer's specifications and compliance with warranty requirements |
| 4. Perform tests | 4.1 Power-on test individual equipment items<br>4.2 Visually check that all connections and interconnections are firm and sound |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.3 Electrically test all terminations for continuity according to enterprise guidelines |
| 5. Complete project documentation | 5.1 Install labels to new equipment and radiation warning signs, where required, according to enterprise guidelines<br>5.2 Record test results for future reference, complete reports on equipment installation and amend design to reflect existing cable layout and equipment according to enterprise requirements<br>5.3 Recover obsolete materials and return to appropriate point for disposal<br>5.4 Restore site according to requirements of enterprise or approving authority and to client satisfaction<br>5.5 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.6, 2.2, 2.4, 3.1-3.3, 5.4 | • Analyses and consolidates test results and data from a range of sources, against defined criteria and requirements<br>• Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.2, 1.3, 2.1, 5.1, 5.2, 5.5 | • Prepares documentation and correspondence using clear language and correct spelling and terminology<br>• Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols |
| Oral Communication | 1.2, 1.3, 1.6, 1.7, 5.4, 5.5 | • Interacts effectively in verbal exchanges using active listening, questioning and reading of verbal and non-verbal signals to convey and clarify information |
| Numeracy | 2.3-2.5, 3.1-3.3, 4.1, 4.3 | • Makes calculations appropriate for measuring and estimating materials for construction<br>• Takes measurements and uses them for work layout and construction<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |


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| | | |
|---|---|---|
| Navigate the world of work | 1.6, 2.2-2.4, 3.1-3.3, 4.3, 5.1, 5.2, 5.4 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.2, 1.3, 1.6, 1.7, 5.4, 5.5 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers<br>• Recognises and accommodates basic differences and priorities of others |
| Get the work done | 1.1, 1.2, 1.4-1.8, 2.1-2.5, 3.1-3.3, 4.1-4.3, 5.1, 5.3, 5.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes decisions and implements procedures for routine tasks, using formal decision making processes for more complex and non-routine situations.<br>• Addresses problems and initiates standard procedures in response, applying problem solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL314 Install network cable equipment | ICTCBL3069A Install network cable equipment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL314 Install network cable equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare for installation of network cable equipment
- provide cable infrastructure
- install cable equipment support structure for power, alarms and interrogation requirements
- install equipment, test and interpret test results
- label equipment correctly
- safely use any specialised hand or power tools and equipment
- apply regulations and standards related to the installation
- comply with all related health and safety requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and select cabling types, connectors and cabling structures
- identify connections to carrier infrastructure or equipment, such as main distribution frame (MDF) or customer interface units (CIU)
- describe the network cable installation requirements for the client's equipment
- define the electrical and/or optical properties to be measured
- identify the health and safety considerations including:
  - electrical safety
  - lifting hazards
  - manufacturer’s requirements for safe operation of equipment
- describe the test methods and performance requirements to be used
- identify the typical issues and challenges that occur on the worksite


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- describe the purpose of warranties and service level agreements.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- a site where installation of network cable equipment may be conducted
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL315 Maintain cable network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to maintain indoor or outdoor, domestic, commercial or industrial cable network at a client's premises or service provider access networks. This may include communications applications in telephony, broadband, data, video, radio frequency (RF) equipment, security and computer networks, including local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to technicians and lineman installers who install and maintain network cable equipment within the broadband infrastructure deployment. They may upgrade a coaxial or optical fibre cable as part of a hybrid fibre coaxial (HFC) network, a broadband access network or a large client private network.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for cable maintenance | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Scope work by obtaining project plan from appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and arrange for site access to comply with security arrangements<br>1.3 Notify appropriate personnel of identified safety hazards at worksite<br>1.4 Determine cable route and type of cable from schedule, and identify and avoid other services<br>1.5 Obtain plant, tools and safety equipment and material to perform tasks safely and efficiently |
| 2. Maintain cables, cable supports and enclosures | 2.1 Follow health and safety and environmental requirements for given work and avoid contact with other services<br>2.2 Clean area of debris, vegetation and foreign matter if required<br>2.3 Conduct visual inspections on cable infrastructure for assessment of evident damages according to enterprise guidelines, and notify appropriate personnel<br>2.4 Undertake remedial action on damages according to warranties and service level agreements prior to maintenance routine<br>2.5 Perform maintenance tasks and tests in safe manner and note activities on maintenance schedule |
| 3. Complete maintenance documentation | 3.1 Record test results, maintenance activities and corrective actions for future reference and complete maintenance schedule attendance chart according to enterprise requirements<br>3.2 Recover obsolete materials and return to appropriate point for disposal<br>3.3 Restore site according to requirements of enterprise or approving authority and to client satisfaction<br>3.4 Notify appropriate personnel of job completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.4, 3.1 | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements |


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| | | |
|---|---|---|
| | | • Analyses and consolidates test results and data from a range of sources, against defined criteria and requirements |
| Writing | 2.5, 3.1, 3.4 | • Prepares documentation and correspondence using clear language and correct spelling and terminology<br>• Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols |
| Oral Communication | 1.2, 1.3, 2.3, 3.4 | • Conveys and clarifies information effectively to a range of personnel using collaborative techniques, including active listening and questioning<br>• Presents complex information in formal situations using clear and convincing language, tone and pace appropriate for the audience and purpose |
| Numeracy | 1.2, 1.4, 1.5 | • Make calculations appropriate for measuring and estimating materials for maintenance works<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.1, 2.1, 2.3, 3.1, 3.3 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.2, 1.3, 2.3, 3.4 | • Uses a range of strategies, reads verbal and non-verbal signals, establishes a sense of connection and builds rapport with clients and co-workers |
| Get the work done | 1.1-1.5, 2.2-2.5, 3.2, 3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem solving processes in determining solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL315 Maintain cable network | ICTCBL3103A Maintain cable network | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

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# Assessment Requirements for ICTCBL315 Maintain cable network

## Modification History

| Version | Comments |
|---|---|
| Version 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- maintain cables, cable supports and enclosures
- test cables and equipment and interpret results
- undertake remedial action on damages
- safely use specialised hand or power tools and equipment
- apply regulations and standards related to the maintenance
- comply with all related health and safety requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise and select cabling types, connectors and cabling structures
- identify connections to carrier infrastructure or equipment, such as main distribution frame (MDF) or customer interface units (CIU)
- describe the maintenance requirements of the equipment at the client's premises
- identify the electrical and optical properties to be measured
- specify the health and safety considerations including:
  - electrical safety and lifting hazards
  - manufacturer’s requirements for safe operation of equipment
- identify and select the test methods and performance requirements for the maintenance work
- identify the typical issues and challenges that occur on the worksite
- describe the purpose of warranties and service level agreements in relation to maintenance work.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where maintenance of network cable may be conducted
- equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on maintenance activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL316 Install ribbon fibre cable in the FTTX distribution network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the performance outcomes, skills and knowledge required to install ribbon cable in the fibre access node (FAN) site and distribution, local and access underground enclosure joints. Cables may range from 12 fibre to 576 fibre cables.

It applies to individuals who are optical fibre cable installers and splicers deploying broadband access networks using optical technologies. They combine technical skills with specific work health and safety (WHS) skills to work safely on ribbon fibre.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Pre-requisite Unit

| | |
|---|---|
| ICTCBL208 | Splice and terminate optical fibre cable for carriers and service providers |

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |


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| | |
|---|---|
| 1. Prepare for installation of ribbon fibre | 1.1 Select safety equipment to protect self, co-workers and public in line with WHS and environmental requirements<br>1.2 Identify and obtain tools and appropriate equipment required for installation<br>1.3 Check physical conditions relevant to installation and confirm layout of equipment to be installed<br>1.4 Inform appropriate personnel of identified hazards on worksite<br>1.5 Locate other services from relevant authorities<br>1.6 Secure worksite with tests for dangerous gases and guards around open manholes<br>1.7 Obtain approval for alterations to design within organisational guidelines |
| 2. Check and secure existing optical fibre cable | 2.1 Following WHS practices, verify that cable was installed according to installation plan and inspect cable for signs of sheath damage<br>2.2 Maintain minimum bend ratios of cable according to manufacturer specifications while manoeuvring into position<br>2.3 Secure cable according to safe industry practice, avoiding damage to cable and sheath |
| 3. Install ribbon fibres into high density drawers and/or pivot sub-racks in internal cabinets | 3.1 Introduce cable into cabinet rack through appropriate route<br>3.2 Remove cable sheath and lay up ribbon loose tubes into sub-racks without damage to fibre<br>3.3 Remove loose tubes, clean ribbon fibres and prepare for splicing using organisational techniques<br>3.4 Splice ribbon fibres and secure into splice holders<br>3.5 Confirm that fibres are accurately spliced according to organisational specifications |
| 4. Install and splice ribbon cable in underground enclosures | 4.1 Select appropriate enclosure for function and cable type<br>4.2 Prepare cables for mid-span and butt splicing following vendor guidelines<br>4.3 Feed cable accurately into enclosure according to network owner guidelines<br>4.4 Lay up ribbon fibre in enclosure splice tray to allow accurate and efficient splicing<br>4.5 Cross-reference fibre numbering to match fibres accurately<br>4.6 Strip ribbon fibres to specifications<br>4.7 Splice ribbon fibres accurately |


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| | |
|---|---|
| | 4.8 Apply heat-shrink sleeves to ensure protection of spliced ribbon fibres<br>4.9 Secure spliced ribbon fibres in splice holders |
| 5. Close and seal enclosure | 5.1 Check cable and ribbon fibre placement in splice trays conform to vendor and network owner specifications and adjust if necessary<br>5.2 Close and secure splice trays and fit enclosure cap<br>5.3 Heat shrink seals around cable entry ports when using heat shrinking techniques, according to vendor and network owner guidelines<br>5.4 Close and tighten seals around ribbon fibre cables when using mechanical sealing techniques, according to vendor and network owner guidelines<br>5.5 Check for signs of effective seal and re-seal if necessary |
| 6. Complete site reinstatement, reporting and sign off requirements | 6.1 Place sealed enclosure in pit and secure to vendor and network owner specifications<br>6.2 Identify signs of damage or potential damage to pit and cable and take steps to mitigate<br>6.3 Reinstate site to network owner specifications<br>6.4 Prepare and finalise reports, including test results and alterations to plans, according to network owner requirements<br>6.5 Advise client of work completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance** | **Description** |
|---|---|---|
| Reading | 1.5, 2.1, 2.2, 5.1, 5.3, 5.4 | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.4, 6.4 | • Accurately records and completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology |
| Oral Communication | 1.4, 1.5, 6.5 | • Uses clear language and concepts, and tone and pace appropriate for the audience and purpose |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 1.7, 2.1, 3.5 | • Complies with explicit policies and procedures<br>• Explores and implements where identified the implicit expectations of policies, procedures and standards |
| Get the work done | 1.2, 1.3, 1.6, 1.7, 2.1-2.3, 3.1-3.5, 4.1-4.9, 5.2-5.5, 6.1-6.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL316 Install ribbon fibre cable in the FTTX distribution network | ICTCBL3240B Install ribbon fibre cable in the FTTX distribution network | Updated to meet Standards for Training Packages<br><br>Performance Criteria clarified | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL316 Install ribbon fibre cable in the FTTX distribution network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare cable for mid-span splicing – strip and coil
- prepare cable for butt end splicing – strip and coil
- install ribbon fibre cable into:
  - one heat shrink seal enclosure
  - one mechanical seal enclosure
  - one high density ribbon fibre termination drawer
- splice ribbon fibre according to specifications
- observe all network owner requirements and product practices to ensure optimal performance of cable systems
- adapt techniques to a range of technical and environmental conditions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- determine the applicable network owner standards, specifications and procedures for cable installation
- determine the cable installation requirements, including:
  - causes of signal strength loss in optical fibre
  - colour coding and numerical coding of fibres
  - application of relevant safe operation of laser instruments
  - installation equipment
- specify the industry and organisational policies and procedures when splicing optical fibre cable


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- identify manufacturer requirements for safe operation of optical fibre equipment
- identify common hazards associated with the construction site
- describe work health and safety (WHS) and environmental control processes and responsibilities on worksites
- describe the safe handling of optical fibres and related equipment including:
  - hazards relating to handling of optical fibre and laser light source in the workplace
  - injuries:
    - damage to retina from lasers
    - damage to lungs from inhalation of fibre offcuts and particles
    - needle stick injury from fibres and offcuts
  - laser warning signs and labels relating to optical fibre components and equipment
  - safety requirements when handling and working with:
    - active equipment
    - laser light sources
    - optical fibre connectors
    - optical fibres
    - patch cords
- describe the major feature and use of ribbon fibre, including:
  - bend ratios for ribbon fibre
  - procedures for handling and placing ribbon fibre in enclosures
  - procedures for physical handling of ribbon fibre cables
  - structure of ribbon fibre cables
  - splicing techniques for ribbon fibre
  - types and functions of ribbon fibre enclosures
- describe the risks associated with confined spaces and determine the appropriate responses.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – cabling field of work and include access to special purpose tools, equipment and materials. These include:

- optic fibre cabling and equipment
- a range of cabinet types and other housings requiring cable-handling techniques
- personal protective equipment
- first aid and fire safety equipment
- ribbon fibre cleaners, stripper and splicer
- joint pressure testing equipment.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL317 Cut over metallic conductor cable in the access network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 3.0. |

## Application

This unit describes the skills and knowledge required to cut over and rearrange new and existing distribution cables in the telecommunications access network.

It applies to linesworkers, jointers or technicians from carriers, contractors or other service providers who work on new or existing copper cables in the access network.

Work functions in the occupational areas where this unit may be used may be subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for cable modification and cutover | 1.1 Obtain relevant legislation, codes, regulations, client practices, manufacturer's guidelines and standards for for the job.<br>1.2 Obtain project plan from appropriate personnel and use plan to scope work for job<br>1.3 Arrange for access to worksite, according to local government or other authority requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Inspect site to develop a work health and safety (WHS) plan and notify appropriate personnel of identified safety hazards<br>1.5 Determine cable route and type of cable from project plan, taking into account the location of other services<br>1.6 Obtain required plant, tools, safety equipment and materials<br>1.7 Prepare detailed plan of cut over tasks according to project plan, job scope, legislative and other requirements, and obtain necessary approvals<br>1.8 Notify client and network carrier of proposed cutover activity and proposed disruption to services that may impact on their service level agreements (SLAs)<br>1.9 Undertake additional preparatory non-jointing work, as required, according to client practices and site conditions |
| 2. Joint and cut over cable | 2.1 Prepare cabinet, joint enclosure and jointing chambers for cable handling, entry and sealing requirements<br>2.2 Joint cable according to jointing sequence, materials, connectors and joint type, location, client practices and manufacturer's guidelines<br>2.3 Test cable for performance and rectify cutover faults relating to cutover according to location, materials available and client practices, and record test results for future reference<br>2.4 Seal all joints according to cable type, location, client practices and manufacturer's guidelines |
| 3. Clean up worksite and complete documentation | 3.1 Complete reports on cutover installation and design amendments to reflect existing cable layout<br>3.2 Place and secure cables to supports in jointing chamber or cabinet according to client practices<br>3.3 Mark up As Built plans for return to client for their records<br>3.4 Recover obsolete materials and return to appropriate point for disposal<br>3.5 Restore site according to client practices or approving authority requirements<br>3.6 Notify appropriate personnel about completion of cutover and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.5, 1.7, 1.8, 2.3, 2.4, 3.1, 3.3, 3.4 | • Interprets plans, specifications and other documentation from various sources<br>• Consolidates information to determine requirements |
| Writing | 1.2, 1.3, 1.7, 1.8, 3.1, 3.3, 3.6 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols<br>• Prepares documentation and correspondence using clear language and correct spelling |
| Oral Communication | 1.2, 1.3, 1.6, 1.7, 1.8, 3.6 | • Interacts effectively in verbal exchanges using appropriate language, and listening and questioning skills to convey and clarify information |
| Numeracy | 1.4, 1.5, 1.6, 2.3, 2.4 | • Makes calculations required for measuring and estimating materials for construction<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.1, 1.3, 1.7, 1.9, 2.2, 2.3, 2.4, 3.2, 3.4, 3.5 | • Complies with policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.2, 1.3, 1.7, 1.8, 3.1, 3.3, 3.6 | • Uses appropriate practices and protocols to communicate effectively with colleagues, clients and others |
| Get the work done | 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 2.2, 2.3, 2.4, 3.3, 3.6 | • Plans, sequences and carries out tasks to meet required outcomes<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Uses problem solving processes to address less predictable problems, referring to standard procedures to determine solutions |

# Unit Mapping Information

| Code and title Current version | Code and title Previous version | Comments | Equivalence status |
|---|---|---|---|


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| **Code and title Current version** | **Code and title Previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL317 Cut over metallic conductor cable in the access network | Not applicable | New unit to address industry skill needs. | No equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL317 Cut over metallic conductor cable in the access network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 3.0. |

## Performance Evidence

Evidence of the ability to:

- communicate with stakeholders to set up the site for a cabling cutover job
- use project plan to determine cable route and necessary fittings for installation
- use project plan to prepare detailed cut over plan including any anticipated outages that may affect service level agreements (SLAs)
- follow client practices for the placement and sealing of the cables
- separate, label and joint cable units and pairs to client practices
- test cable, rectify faults, record results and action taken
- seal all joints and cabinets according to enterprise agreements
- comply with relevant work health and safety (WHS) requirements
- place and secure cables and mark up As Built plans
- hand over completed job to client.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe common cabling types, connectors and cabling structures
- outline requirements of legislation, codes of practice and other formal agreements that impact on the work activity
- describe how the manufacturer’s jointing and sealing practices can be followed in a safe manner
- explain the process of cutting over a cable for various scenarios
- specify the WHS requirements relating to setting up an outdoor site and accessing underground facilities


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- describe the features and operating conditions of test equipment and how the equipment is used to measure cable performance
- identify typical issues and challenges that may cause delays in job completion, and how these could be addressed
- describe the purpose of warranties and SLAs.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- cable systems and jointing equipment required to cut over cable
- cabling infrastructure required for installation
- regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL318 Install and cut over metallic conductor cable to access network cabinet

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 3.0. |

## Application

This unit describes the skills and knowledge required to install and cutover a new metallic conductor cable to an access network distribution cabinet. The cable types are typically up to 200 pair copper cables in the carrier access network. The cabinet types may be mixed mode bearer cabinets in the access network and cross connect units (CCUs) or pillars.

It applies to linesworkers, field officers or technicians working for carriers, contractors or other service providers who install and rearrange copper cables in the carrier network.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation | 1.1 Obtain relevant legislation, codes, regulations and standards for the job<br>1.2 Obtain project plan to scope work and then obtain approval from client on key features of installation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Arrange for site access to comply with landholder, government and statutory body regulations<br>1.4 Inspect site to develop work health and safety (WHS) plan and notify appropriate personnel of identified safety hazards<br>1.5 Determine cable route and type of network cable equipment from project plan, taking into account the location of other services<br>1.6 Obtain required plant, tools, safety equipment and materials for cabinet entry<br>1.7 Coordinate with other parties to minimise disruption to services and down time<br>1.8 Segregate incoming and outgoing cables to facilitate access and avoid overlaying and backtracking of cable<br>1.9 Notify stakeholders of proposed cutover details and proposed disruption to services<br>1.10 Undertake additional preparatory non-jointing work, as required, according to client practices and site conditions |
| 2. Install required cable and termination modules | 2.1 Follow WHS and environmental requirements for given work<br>2.2 Evaluate existing termination module type and capacity<br>2.3 Install additional termination modules, if required, and modify existing housing capacity according to manufacturer's specifications and industry practice<br>2.4 Determine cable route between the parent jointing chamber and the cable termination blocks to comply with client practices, site limitations, equipment specifications and regulations<br>2.5 Select entry port and sealing arrangements<br>2.6 Install cable to cabinet<br>2.7 Arrange and distribute cable fan out and routing according to industry practice |
| 3. Joint, jumpering and cutover cable | 3.1 Joint cable according to jointing standards, materials, joint type, location, client practices and manufacturer's guidelines<br>3.2 Install jumpers and cut away tails to industry practice and to minimise service outages<br>3.3 Test cable for performance and rectify any faults relating to cutover according to location, materials available and industry practice<br>3.4 Seal all joints and cabinet according to cable type, location, client practices and manufacturer's guidelines |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 4. Perform tests | 4.1 Visually check that all connections and interconnections are firm and sound<br>4.2 Electrically test all terminations for continuity according to client practices<br>4.3 Reseal and pressurise cables |
| 5. Complete site restoration and project documentation | 5.1 Supply test results to the client for future reference<br>5.2 Complete cut over report and design amendments report (As Built) to show final cable layout<br>5.3 Recover obsolete materials and return to appropriate point for disposal<br>5.4 Restore site according to client practices or approving authority requirements<br>5.5 Notify appropriate personnel about completion of cutover and obtain sign off |

# Foundation Skills

*This section describes language; literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.7, 1.9, 2.3, 3.3, 3.4, 4.2 | • Interprets plans, specifications and other documentation from various sources<br>• Consolidates information to determine requirements |
| Writing | 1.1, 1.2, 1.3, 1.4, 1.7, 1.9, 2.3, 3.1, 3.2, 3.3, 4.2, 5.2 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols<br>• Prepares documentation and correspondence using clear language and correct spelling |
| Oral Communication | 1.2, 1.3, 1.4, 1.7, 1.9, 3.3, 5.5 | • Interacts effectively in verbal exchanges using appropriate language, listening and questioning skills to convey and clarify information |
| Numeracy | 1.2, 1.5, 2.2, 2.3, 2.4, 2.7, 3.1, 3.2, 3.3, 4.2, 4.3, 5.2 | • Makes calculations required for measuring and estimating materials for construction<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 1.3, 1.4, 1.10, 2.1, 2.3, 2.4, 2.7, 3.1, 3.2, 3.3, 3.4, 4.2, 4.3, 5.3, 5.4 | • Complies with policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.2, 1.3, 1.4, 1.7, 1.9, 3.3, 5.5 | • Uses appropriate practices and protocols to communicate effectively with co-workers, clients and others |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.9, 1.10, 2.2, 2.3, 2.4, 2.7, 3.1, 3.2, 3.3, 3.4, 5.1, 5.5 | • Plans, sequences and carries out tasks according to meet required outcomes<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Uses problem solving processes to address less predictable problems, referring to standard procedures to determine solutions |

# Unit Mapping Information

| **Code and title Current version** | **Code and title Previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL318 Install and cut over metallic conductor cable to access network cabinet | Not applicable | New unit written to meet industry identified skills shortage. | No equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL318 Install and cut over metallic conductor cable to access network cabinet

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.0. |

## Performance Evidence

Evidence of the ability to:

- interpret project plan to determine cable route, required plant, tools, safety equipment and materials
- communicate with other stakeholders to arrange site access and safety requirements
- prepare cabinet and cable for cable entry according to client practices
- install cable, label and fan out for termination
- install termination modules
- coordinate with other parties to minimise service outages
- terminate pairs to termination modules following client practices
- run jumpers and cutover services with minimum outages
- conduct tests and rectify faults caused by cutover
- recover obsolete materials and restore site
- complete required documentation related to cut over
- comply with all related health and safety requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list and describe cabling types, connectors and cabling structures
- outline the requirements of the legislation, codes of practice and other formal agreements that impact on the work activity
- describe the manufacturer's requirements for the operation of jointing equipment
- summarise the process for the cut over of a cabinet entry cable
- specify the health and safety requirements relating to the activity and site conditions


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- describe the features and operating conditions of test equipment and how the equipment is used to measure cable performance
- identify typical issues and challenges that may cause delays in project construction activities, and how these could be addressed
- describe the purpose of warranties and service level agreements (SLAs).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and are or replicate the workplace. Traffic and pedestrian control, noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- systems and equipment used for cut over
- installation equipment currently used in industry
- regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL319 Rearrange large size copper cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.0. |

## Application

This unit describes the skills and knowledge required to modify a large size cable network or cut over new large size cables in the telecommunications access network. It includes telephony, data security and emergency services within the cable sheath.

It applies to linesworkers, technicians or copper jointers working for carriers, contractors or other service providers who cut over and rearrange large size cable to distribution cabinets and housings.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for cable modification and cutover | 1.1 Obtain relevant legislation, codes, client practices, regulations and standards for given work<br>1.2 Obtain project plan from appropriate personnel and use it to scope work<br>1.3 Arrange for site access according to local government and other |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | authority requirements<br>1.4 Inspect site to develop a work health and safety (WHS) plan and notify appropriate personnel of identified safety hazards<br>1.5 Determine cable route and type of cable from project plan, and identify and avoid other services<br>1.6 Determine large size cable handling and support facilities<br>1.7 Obtain plant, tools, safety equipment and material to perform tasks safely and efficiently<br>1.8 Prepare implementation plan with cutover tasks based on identified nature of job and seek client approval, if required<br>1.9 Notify client and network carrier of proposed cutover details and proposed disruption to services<br>1.10 Undertake additional preparatory non-jointing work, as required, according to client practices and site conditions<br>1.11 Coordinate labour required for remote cutover of large size cable |
| 2. Joint and cutover cable | 2.1 Follow WHS and environmental requirements for given work<br>2.2 Notify appropriate personnel of cable pressure and equipment alarms<br>2.3 Prepare joint enclosure and jointing cabinet for cutover cable entry, jointing activities and entry port enclosure sealing<br>2.4 Set up jointing machines and jigs for jointing<br>2.5 Joint cable according to jointing sequence, materials, joint type, location, and client practices and manufacturer's guidelines and to meet service level agreements (SLAs)<br>2.6 Test cable for performance, rectify and rectify any faults relating to cutover according to location, materials available and client practice<br>2.7 Seal all joints according to cable type, location, and enterprise and manufacturer's guidelines |
| 3. Arrange cables and secure site | 3.1 Arrange cables in jointing chamber or cabinet according to client practices<br>3.2 Recover obsolete materials and return to appropriate point for disposal<br>3.3 Restore site according to client practices and other authority requirements |
| 4. Complete project | 4.1 Complete reports on cutover installation, and design amendments |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| documentation | to reflect existing cable layout, according to client practices<br>4.2 Notify appropriate personnel of completion of cutover and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 1.5, 1.7, 1.8, 2.2, 2.5, 2.6, 4.1, 4.2 | • Interprets plans, specifications and other documentation from various sources<br>• Consolidates information to determine requirements<br>• Analyses test results and data from a range of sources against defined criteria and requirements |
| Writing | 1.2, 1.3, 1.7, 2.2, 2.6, 3.1, 4.1, 4.2 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols<br>• Prepares documentation and correspondence using clear language and correct spelling and terminology |
| Oral Communication | 1.3, 1.8, 2.2, 2.6, 4.2 | • Interacts effectively in verbal exchanges using appropriate language, listening and questioning skills to convey and clarify information |
| Numeracy | 1.2, 1.4, 1.11, 2.2, 2.3, 2.5, 2.6, 4.1 | • Make calculations required for measuring and estimating materials for construction<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.1, 1.3, 1.4, 1.10, 2.1, 2.5, 2.6, 2.7, 3.2, 3.3, 4.1 | • Complies with policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.3, 1.8, 2.2, 2.6, 4.2 | • Uses appropriate practices and protocols to communicate effectively with colleagues, clients and others |
| Get the work done | 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 2.5, 2.6, 2.7, 4.2 | • Plans, sequences and carries out tasks according to meet required outcomes<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Uses problem solving processes to address less |


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| | | |
|---|---|---|
| | | predictable problems, referring to standard procedures to determine solutions |

## Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL319 Rearrange large size copper cable | Not applicable | New unit to meet skills required in the industry. | No equivalent unit |

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL319 Rearrange large size copper cable

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.0. |

## Performance Evidence

Evidence of the ability to:

- obtain and use information to prepare a plan to implement cutover tasks
- obtain all resources required to carry out cutover tasks
- implement plan including:
  - preparing jointing cabinets and chambers for cutover
  - preparing, entering and sealing new cables to large size joint enclosures
  - using jointing machines and jigs for jointing
  - conducting tests to determine success of cutover
  - interpreting results and rectifying faults occurring as a result of cutover
  - sealing joints and restoring alarms
- comply with all related health and safety requirements, client and work practices
- complete and store required project documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list common cabling types, connectors and cabling structures
- describe legislation, codes of practice and other formal agreements that impact on the work activity
- list and describe equipment used for the work activity and the manufacturer’s requirements for safe operation
- explain how the cutover of large size cable is performed on the client's equipment
- explain the main health and safety concerns relevant to the work activity
- describe how cable performance is tested


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- describe the equipment, including operating requirements, used to test cable
- identify typical issues and challenges that occur on worksites, and how to address them
- describe the purpose of warranties and service level agreements (SLAs).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- systems and equipment required for cutover activities
- installation equipment currently used in industry
- regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL320 Jumper metallic conductor cable in the access network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.0. |

## Application

This unit describes the skills and knowledge required to jumper metallic conductor cable in access network cabinets or exchange distribution frames. It applies to new or existing jumpering for upgrades or network cabling rearrangements for convergence to next generation networks (NGN).

It applies to linesworkers, technicians or jointers who carry out technical roles involving indoor and outdoor distribution frame jumpering. All jumpering in access network distribution cabinets must be conducted by workers who have been authorised by the network owner or carrier to undertake the work involved.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare cabinet and termination frame for | 1.1 Arrange access according to customer and individual worksite requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| jumpering | 1.2 Set up work site to ensure public safety and to comply with utility provider, local, state and commonwealth requirements<br>1.3 Inspect site to develop work health and safety (WHS) plan and notify appropriate personnel of identified safety hazards<br>1.4 Prepare for cable jumpering work observing client practices, cable type, termination systems, earthing and protection and relevant legislative requirements<br>1.5 Select correct jumpering activities for installation according to client practices<br>1.6 Identify remote power feeding services that operate at above telecommunications network voltage (TNV) and special services that terminate in the cabinet of housing<br>1.7 Take necessary precautions to work safely with network voltages and minimise service disruption to special services<br>1.8 Remove all contaminants from worksite that may adversely affect jumpering and prepare worksite to ensure adequate visibility to minimise errors and reduce eye strain<br>1.9 Plan block locations following client practices within the frame and allow for capacity to expand jumpering where possible |
| 2. Jumper terminal blocks on frame | 2.1 Install terminating modules to frame according to manufacturer's specifications<br>2.2 Set up jumpering reel near source terminal block and draw jumper through frame<br>2.3 Terminate jumper to block and return, cut and terminate source end of jumper<br>2.4 Identify and label jumpers according to client practices<br>2.5 Install over-voltage protection devices to all cables with metallic component where required<br>2.6 Earth cable shield to manufacturer's specifications and industry standards |
| 3. Test jumpering and seal closure | 3.1 Conduct visual inspection to confirm that jumper is not kinked or jammed<br>3.2 Test termination to satisfy performance specifications and record results if required<br>3.3 Close housing, seal and re-pressurise where necessary |
| 4. Complete records and restore site | 4.1 Update records and plans accurately with cabling details according to industry codes of practice and current Australian standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.2 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions<br>4.3 Notify appropriate personnel about completion of job and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1, 2.4, 2.6, 3.2, 4.1 | • Interprets textual information from relevant sources to identify relevant and key information |
| Writing | 1.3, 2.4, 3.2, 4.1, 4.3 | • Uses clear, specific and industry related terminology to complete workplace documentation |
| Oral communication | 1.1, 1.3, 4.3 | • Interacts effectively in verbal exchanges using appropriate language, listening and questioning skills to convey and clarify information |
| Numeracy | 1.4, 1.6, 2.1, 2.6, 3.2, 4.1 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.1, 1.2, 1.3, 1.4, 1.7, 1.8, 2.5, 2.6, 4.1, 4.2 | • Complies with policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.1, 1.3, 4.3 | • Identifies and follows accepted communication practices and protocols when liaising with clients, colleagues and others |
| Get the work done | 1.1, 1.4, 1.5, 1.6, 1.9, 2.1, 3.1, 3.2, 4.1, 4.3 | • Plans, sequences and carries out tasks to meet required outcomes<br>• Analyses task requirements to decide on appropriate equipment and practices |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL320 Jumper metallic conductor cable in the access network | Not applicable | New unit to address industry skill needs. | No equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL320 Jumper metallic conductor cable in the access network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.0. |

## Performance Evidence

Evidence of the ability to:

- plan and prepare for jumpering activity including:
  - arranging safe access to site
  - identifying special services and remote power feeds a
  - following appropriate procedures
- carry out jumpering activity including:
  - populate terminal frames with new terminal blocks where necessary
  - running jumpers through frame and terminate jumper to terminal blocks
  - using correct methods to terminate a range of jumpers
  - conducting tests and interpreting cable test results for several different types of lead-in faults
  - interpreting and applying relevant legislative requirements
- finalise jumpering activity including:
  - updating records and plans to show cable locations
  - restoring site to required condition
  - obtaining final sign off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list the termination tools required for the work activity and explain how to operate them according to safety and manufacturer's guidelines
- describe the features and operating requirements of testing equipment


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- describe the process used to install and maintain cabling products according to manufacturer's guidelines
- outline legislation, codes of practice and other formal agreements that impact on the work activity
- describe specific work health and safety requirements relating to the activity and site conditions
- explain termination methods and performance requirements for jumpering activity
- describe typical issues and challenges that occur on site and how to address them.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where metallic conductor cable may be terminated
- colour codes for visual inspections or wire-mappers for 4 pair cable tests
- regulatory and cabling documentation that impacts on cable terminating activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL401 Prepare design drawings and specification for a cable installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare design drawings and specification for indoor or outdoor, domestic, commercial or industrial cable installations for communications applications compliant with appropriate Australian Communications and Media Authority (ACMA) technical standards.

It applies to technical staff who prepare design drawings and specifications for digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia cable communication installations on a client's premises.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather information on existing and proposed | 1.1 Confirm cable installation requirements with client<br>1.2 Inspect site to confirm building plans where possible |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| installation | 1.3 Review existing cable plans and drawings |
| 2. Determine installation options | 2.1 Assess available installation options against client requirements and relevant legislation, codes, regulations and standards<br>2.2 Establish and assess cost of options against client's budget<br>2.3 Select most suitable option based on function and cost considerations, and present to client |
| 3. Prepare suitable drawings | 3.1 Prepare clear and accurate cable installation drawings indicating proposed outlets and services<br>3.2 Provide drawings to relevant parties and file copies for later reference according to company policies |
| 4. Prepare cabling specifications | 4.1 Prepare detailed cabling specifications for cabling system<br>4.2 Prepare accurate costing from detailed specification, including equipment and material required |
| 5. Verify specifications with client | 5.1 Verify prepared documentation with client<br>5.2 Obtain authorisation and sign off from client to proceed according to company policy |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.3 | • Analyses complex documentation from a variety of sources<br>• Interprets and checks completeness and accuracy of information and data<br>• Evaluates information and products from a variety of sources to ensure appropriateness for client needs |
| Writing | 1.1, 2.3, 3.1, 4.1, 4.2, 5.1, 5.2 | • Writes, edits and proofreads plans and documents to ensure clarity of meaning, accuracy and consistency of information<br>• Records client information and completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology |


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| | | |
|---|---|---|
| Oral Communication | 1.1, 2.3, 5.1, 5.2 | • Use active listening and questioning to clarify requirements |
| Numeracy | 1.2, 1.3, 2.1-2.3, 3.1, 4.1, 4.2 | • Performs mathematical calculations to check, interpret and confirm information for design specifications and drawings<br>• Makes calculations appropriate for measuring, estimating materials and costs |
| Navigate the world of work | 2.1, 5.2 | • Takes full responsibility for following policies, procedures and legislative requirements and identifies organisational implications of new legislation or regulation on design parameters |
| Interact with others | 1.1, 2.3, 3.2, 5.1, 5.2 | • Selects and uses appropriate communication practices with others |
| Get the work done | 1.1, 1.2, 2.1, 2.3, 3.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL401 Prepare design drawings and specification for a cable installation | ICTCBL4002A Prepare design drawings and specification for a cable installation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL401 Prepare design drawings and specification for a cable installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine installation requirements and options
- produce schematic and floor plan drawings based on design parameters
- produce specifications based on design drawings
- verify design drawings and specifications with client
- produce a costing of the design and specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise and apply the Australian Communications and Media Authority (ACMA) regulation requirements for Telecommunications Cabling Provider Rules in the design
- recognise and apply legislation, codes of practice and other formal resources that impact on the design
- recognise and apply industry recognised drafting principles and standards
- identify key features and operating requirements of resources and equipment required for the client cable installation
- identify and include the manufacturer’s performance specifications for equipment and consumables in the design
- assess health and safety requirements relating to the design.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where cable installation may be conducted
- equipment currently used in industry
- relevant regulations, company policies and cabling specifications that impact on cable installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL402 Schedule and supply cabling installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to schedule and supply indoor and outdoor, domestic, commercial or industrial communications cabling installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to technical staff who schedule and supply cabling installations appropriate to Australian Communications and Media Authority (ACMA) rules.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Schedule supply and installation events | 1.1 Confirm cabling installation requirements and project specifications from client<br>1.2 Prepare work schedules and installation plans, identifying key dates and milestones |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Obtain information on location of other services from relevant authorities<br>1.4 Prepare schedule of material supplies to be available when required for installation |
| 2. Monitor and adjust supply requirements | 2.1 Adjust labour load variations to meet installation needs to enable completion within budget and timeframes<br>2.2 Prepare quote and confirm additional work requests with client prior to commencement<br>2.3 Monitor work progress against project schedules and budgets<br>2.4 Monitor compliance regularly with client specifications, licensing, relevant legislation, codes, regulations and standards<br>2.5 Prepare report detailing project scheduling and supply requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.3, 2.4 | • Analyses plans and other documentation from a variety of sources<br>• Interprets and checks completeness and accuracy of information and data |
| Writing | 1.2, 1.4, 2.1, 2.5 | • Prepares a range of documents using appropriate language and organisational formats |
| Oral Communication | 1.1, 1.3, 2.2 | • Uses appropriate language for audience and context<br>• Uses questioning and listening skills to clarify requirements |
| Numeracy | 1.1, 1.2, 1.4, 2.1-2.3 | • Make calculations appropriate for measuring and estimating materials for construction<br>• Performs mathematical calculations to analyse labour, costs and quantities to accurately process quotations<br>• Interprets and manipulates numerical information relating to targets and timelines |
| Navigate the | 2.4 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies |


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| | | |
|---|---|---|
| world of work | | organisational implications of new legislation or regulation |
| Interact with others | 1.1, 1.3, 2.2 | • Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.1, 1.2, 2.1, 2.3, 2.4 | • Plans and sequences complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision making processes for complex and non-routine situations<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL402 Schedule and supply cabling installation | ICTCBL4004A Schedule and supply cabling installation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL402 Schedule and supply cabling installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and provide appropriately skilled labour, volume and type of material to meet key dates and milestones for installations
- identify labour and material sources and negotiate with contractors, suppliers and other service providers to meet installation deadlines
- monitor work progress and adjustment of resource requirements to meet both client's needs and costing parameters in installations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe appropriate methods for scheduling labour and resources
- recognise the requirements to safely operate equipment and install components according to a manufacturer's specification
- outline the work health and safety (WHS) standards and practices required to:
  - manage risk and hazards in the workplace
  - use health and safety standards
  - work systematically with required attention to detail without injury to self or others
- identify and describe legislation, codes of practice and other formal agreements that impact on the work activity
- identify typical issues and challenges that occur in scheduling work and overseeing a worksite.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites and equipment where cabling installation may be conducted
- relevant regulatory and equipment documentation that impacts on installation activities
- organisational policies and procedures for documenting schedules.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL403 Supervise cabling project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to supervise an indoor or outdoor, domestic, commercial or industrial communications cabling project. It requires planning, preparing financial budgets and monitoring cabling work. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

It applies to technical staff who supervise a cabling project on a client's premises where technical and organisational skills are required to ensure an effective outcome for the client.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and organise cabling activities | 1.1 Obtain cabling installation specifications and project specifications from client<br>1.2 Prepare work schedules and installation plans identifying key dates and milestones |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Organise resource requirements<br>1.4 Verify location of proposed installation according to plans obtained from authorised personnel<br>1.5 Obtain information on location of other services from relevant authorities<br>1.6 Document plans for cabling project and advise relevant parties |
| 2. Prepare financial budgets | 2.1 Prepare budget identifying *c*ost and expenditure items from scheduling and planning documentation<br>2.2 Advise relevant personnel of purchasing and other delegations within budget allocations<br>2.3 Prepare budget projections within estimated and approved contract pricing |
| 3. Source human resource requirements for cabling | 3.1 Estimate number and determine availability of suitable human resources according to contract requirements and relevant industrial and enterprise policy<br>3.2 Establish necessary competency and licence requirements of project personnel prior to recruitment<br>3.3 Schedule personnel workloads and allocate within industrial and enterprise requirements |
| 4. Monitor cabling works | 4.1 Follow work health and safety (WHS) processes and site-specific safety requirements according to plan<br>4.2 Monitor compliance regularly with client specification, relevant legislation, codes, regulations and standards<br>4.3 Notify client promptly on difficult or known problem areas<br>4.4 Reallocate work as required to meet client and company requirements<br>4.5 Monitor costs and time schedules to identify and resolve any potential problem<br>4.6 Provide report on work progress activity and schedule |
| 5. Evaluate outcomes of cabling projects | 5.1 Review cabling projects to identify areas where performance has been below client and enterprise expectations<br>5.2 Implement recommendations to ensure effective improvements |
| 6. Complete administrative tasks | 6.1 Complete documentation<br>6.2 Notify client and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3-1.5, 2.1 | • Critically analyses complex documentation from a variety of sources<br>• Checks completeness and accuracy of information and data |
| Writing | 1.2, 1.6, 2.1, 2.3, 3.3, 4.3, 4.6, 6.1, 6.2 | • Completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology<br>• Documents outcomes and changes to schedules using industry relevant terminology and symbols<br>• Writes, edits and proofreads documents to ensure clarity of meaning, accuracy and consistency of information |
| Oral Communication | 1.1, 1.6, 2.2, 4.3, 4.6, 6.2 | • Participates in verbal exchanges using collaborative and inclusive techniques including active listening and questioning to convey and clarify information<br>• Presents complex information using clear and convincing language, tone and pace appropriate for the audience and purpose |
| Numeracy | 1.2-1.5, 2.1-2.3, 3.1, 3.3, 4.5 | • Interprets and manipulates numerical information relating to targets and timelines<br>• Make calculations appropriate for measuring and estimating materials for installation work<br>• Performs mathematical calculations to analyse labour, costs and quantities to accurately produce quotations and budgets |
| Navigate the world of work | 3.1-3.3, 4.1, 4.2, 4.4 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies the organisational implications of new legislation or regulation<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.1, 1.6, 2.2, 4.3, 6.2 | • Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships<br>• Collaborates with others, sharing information to build strong work groups and avoid behaviours that are not conducive to a productive environment<br>• Manages conflict in the workplace through the recognition |


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| | | |
|---|---|---|
| | | of contributing factors and by implementing strategies to resolve conflict |
| Get the work done | 1.2-1.6, 3.2, 4.2, 4.4, 4.5, 5.1, 5.2 | • Accepts responsibility for planning, sequencing and monitoring complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Responds to problems requiring immediate resolution, drawing on past experiences |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL403 Supervise cabling project | ICTCBL4023A Supervise cabling project | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL403 Supervise cabling project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- complete all appropriate plans and financial budgets for cabling activities
- supervise cabling project applying human resource policies, including awards and conditions and all related health and safety and work practices
- monitor and implement alternate plans where necessary to meet work schedules and client requirements
- complete a project report on a cabling project detailing recommendations for improvement.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe appropriate methods for scheduling, costing and managing labour and resources on a project
- recognise the requirements to safely operate equipment and install components according to a manufacturer's specification
- outline the health and safety standards and practices required to:
  - manage risk and hazards in the workplace
  - use health and safety standards
  - work systematically with required attention to detail without injury to self or others
- identify and describe legislation, codes of practice and other formal agreements that impact on the work activity
- identify typical issues and challenges that occur in scheduling and supervising a worksite
- outline the components of reports and identify the reasons for other documentation required when supervising a project.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- a site with a cabling project
- human resource policies, including awards, conditions and all related work health and safety (WHS) and work practices
- relevant regulatory and equipment documentation that impacts on monitoring activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL404 Test cable bearers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to test cable bearers. It involves setting up, testing and interpreting test results and determining appropriate action for all cable types (metallic, optical fibre and coaxial).

It applies to technicians and line installers whose work involves testing cable bearers for connections, signal strength or loss of cable links on client cable and service provider networks, in accordance with manufacturer's and design specifications.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare and set up for cable test | 1.1 Obtain relevant legislation, codes, regulations and standards<br>1.2 Scope work by obtaining project plan from appropriate personnel and arrange for site access to comply with security arrangements<br>1.3 Notify appropriate personnel of identified safety hazards at worksite |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Determine type of cable bearer and cable route from project plan and identify test requirements using work instructions<br>1.5 Obtain tools and safety equipment and material to perform tasks safely and efficiently<br>1.6 Select and use required protective equipment and make site safe and secure for testing work<br>1.7 Determine need for outage, extent, location and timing, if required, and negotiate with appropriate personnel<br>1.8 Select and set up suitable test equipment according to manufacturer's specifications for cable tests to be performed to ensure relevance of test data<br>1.9 Ensure equipment calibration certification is current to reduce possibility of unreliable test data and ensure traceability |
| 2. Perform cable tests | 2.1 Follow work health and safety (WHS) and environmental requirements for given work, and identify and avoid other services<br>2.2 Determine and record cable parameters for consideration in assessment of performance<br>2.3 Conduct performance tests as required by both equipment and enterprise specification for specific cable type and purpose |
| 3. Interpret test results and determine action | 3.1 Record test results for evaluation and compare against manufacturer's and site specifications<br>3.2 Analyse test results and evaluate cable performance with consideration of recorded cable parameters<br>3.3 Diagnose problems to determine cable faults and make arrangements for repairs or modifications<br>3.4 Retest faulty cable after faults have been rectified |
| 4. Document test results and clean up site | 4.1 Produce evaluated test results according to enterprise guidelines and without delay to ensure test results remain current<br>4.2 Update site and installation files to ensure traceability of information on system performance is maintained<br>4.3 Archive test record details for life of cable according to enterprise guidelines<br>4.4 Remove waste and debris from worksite and dispose of according to environmental requirements<br>4.5 Notify appropriate personnel of job completion and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.6-1.9, 2.1, 3.1 | • Analyses and consolidates information and data from a range of sources, against defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 1.2, 2.2, 3.1, 4.1, 4.2, 4.5 | • Records information and prepares correspondence and documentation using clear language and organisational formats and protocols<br>• Records information in organisational systems |
| Oral Communication | 1.2, 1.3, 1.7, 3.3, 4.5 | • Conveys and clarifies information effectively to a range of personnel using active listening, questioning and reading of verbal and non-verbal signals<br>• Presents complex information in formal situations using clear and convincing language, tone and pace appropriate for the audience and purpose |
| Numeracy | 2.3, 3.1-3.4, 4.1 | • Performs mathematical calculations to check, analyse, interpret and confirm results of system tests |
| Navigate the world of work | 1.1, 1.4, 2.1, 2.3, 4.1, 4.3, 4.4 | • Takes full responsibility for following policies and procedures<br>• Identifies and resolves key variations to standard procedures identified from conducting tests |
| Interact with others | 1.2, 1.3, 1.7, 4.5 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers |
| Get the work done | 1.2, 1.4-1.9, 2.1-2.3, 3.1, 3.3, 3.4, 4.1-4.4 | • Plans and sequences complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables including the outcomes of previous tests<br>• Applies systematic and analytical decision making processes for complex and non-routine situations |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCBL404 Test cable bearers | ICTCBL4057A Test cable bearers | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL404 Test cable bearers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- perform tests on cable bearers
- use a range of tests
- interpret test results
- rectify a range of faults
- report on the completed tests
- comply with all related health and safety requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the features, operation and specifications of test equipment
- identify a range of tests performed on cable bearers
- describe codes of practice and standard procedures that apply to cable bearers
- list common cable bearer faults and describe how to rectify them
- specify health and safety requirements relating to use and operation of test equipment
- outline the components of reports and identify the reasons for other documentation required when conducting tests.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where testing may be conducted


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- cabling and equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on testing cable bearers.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCBL405 Remotely locate and identify cable network faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to remotely locate and identify cable network faults in voice, video and data telecommunications applications using metallic and optical fibre cables.

It applies to technicians who are required to locate telecommunications cable faults in access networks. This may be done at a centralised testing office and make use of computer test routines and databases.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the Implementation Guide Companion Volume or the relevant regulator for specific guidance on requirements.

## Unit Sector

Telecommunications – cabling

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Verify fault report | 1.1 Locate source of fault using available information and contacts to verify nature of fault as reported<br>1.2 Perform preliminary operational testing according to type of fault presentation, fault environment and enterprise guidelines to verify nature of fault |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Analyse historical data to identify possible causes and solutions |
| 2. Conduct remote testing to diagnose network fault | 2.1 Evaluate cable fault details and plan strategy to conduct remote testing<br>2.2 Conduct appropriate remote diagnostic test to isolate and diagnose network fault<br>2.3 Determine urgency and impact of fault and identify required response time frame<br>2.4 Evaluate diagnostic tests to determine type, location and nature of network fault |
| 3. Dispatch fault-finding field personnel | 3.1 Prepare fault report and forward to appropriate staff according to enterprise guidelines<br>3.2 Notify fault centre and arrange for dispatch of technician to rectify fault<br>3.3 Notify client of fault progress and arrange for fault clearance time |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 2.4 | • Analyses and consolidates information and data from a range of sources, against defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 2.1, 3.1-3.3 | • Prepares a range of textual information appropriate for the audience and for informal and formal purposes |
| Oral Communication | 1.1, 3.1-3.3 | • Interacts effectively in verbal exchanges, using active listening and questioning, to convey and clarify information |
| Numeracy | 1.2, 1.3, 2.2-2.4 | • Takes measurements and performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.2 | • Takes full responsibility for following policies, procedures and legislative requirements |


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| | | |
|---|---|---|
| Interact with others | 1.1, 3.1-3.3 | • Collaborates with and implements strategies for a diverse range of colleagues and clients to build rapport, foster strong relationships and achieve outcomes |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.3 | • Plans and sequences complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision making processes for complex and non-routine situations<br>• Uses digital technologies and systems to access information, research and diagnose faults |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCBL405 Remotely locate and identify cable network faults | ICTCBL4099A Remotely locate and identify cable network faults | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCBL405 Remotely locate and identify cable network faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- methodically approach fault identification
- conduct tests appropriate to the type of fault identified
- interpret test results
- provide instructions to staff engaged in on-site repair.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the features and operating requirements of test equipment
- identify appropriate tests to be performed
- describe the legislation, codes of practice and standard procedures for cable network faults
- specify health and safety requirements relating to fault finding in cable networks
- identify typical issues and challenges that occur when performing remote tests and fault finding.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – cabling field of work and include access to:

- sites where remote investigation of cable network faults may be conducted
- fault-finding equipment currently used in industry
- relevant documentation that impacts on cable network and fault-finding activities.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to organise teams undertaking cabling work on all cable types, and to ensure compliance with regulatory and industry standards.

It applies to technical staff supervising teams within a customer premises and ensuring compliance with the Australian Communications and Media Authority (ACMA) and industry standards. They may make use of formal documentation, such as accurate completion of a telecommunications cabling advice (TCA) form (TCA1 form), test routines and databases.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Compliance

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Organise cabling work activity | 1.1 Arrange access to site according to required procedure<br>1.2 Make worksite safe by identifying and controlling hazards<br>1.3 Review site plans and documentation |


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| | |
|---|---|
| | 1.4 Organise supply of cable, equipment, tools and materials in line with customer and manufacturer's specifications<br>1.5 Schedule and allocate work<br>1.6 Establish communication protocols and processes |
| 2. Monitor work activity | 2.1 Manage remote power feed following workplace health and safety (WHS) and environmental requirements<br>2.2 Monitor work activity to ensure it meets site specifications, enterprise requirements, and relevant legislation, codes, regulations and standards<br>2.3 Reallocate work as needed |
| 3. Complete records and obtain sign off | 3.1 Complete required records<br>3.2 Ensure installation waste and debris is removed from worksite and disposed of according to environmental requirements to maintain safe worksite conditions<br>3.3 Ensure site is reinstated according to customer and company requirements<br>3.4 Notify customer and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.3, 1.4, 3.3 | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.1, 1.6, 3.1, 3.4 | • Prepares workplace documentation and correspondence using clear language, correct spelling and accurate terminology |
| Oral Communication | 1.1, 1.6, 3.4 | • Uses everyday language to provide information or maintain a conversation in familiar spoken contexts |
| Numeracy | 1.3, 2.2 | • Makes calculations appropriate for measuring and estimating materials |
| Navigate the world of work | 1.1, 1.6, 2.1, 2.2, 3.2, 3.3 | • Follows clear instructions within defined level of responsibility<br>• Recognises organisational expectations and follows explicit protocols and procedures |


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| | | |
|---|---|---|
| | | • Seeks clarification when required |
| Interact with others | 1.6, 2.3, 3.4 | • Follows instructions regarding what and how to communicate following predetermined scripts<br>• Recognises common differences in other people and implements basic strategies to address own reaction to these differences |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 2.1-2.3, 3.2, 3.3 | • Follows clearly defined instructions and sequencing, and monitors own progress for the task, seeking assistance when necessary<br>• Responds to highly obvious routine problems using step-by-step instruction and procedures or a trial and error process for non-critical situations<br>• Uses digital technologies following strict instructions to enter and retrieve data |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards | ICTCMP2022B Organise and monitor cabling to ensure compliance with regulatory and industry standards | Updated to meet Standards for Training Packages<br><br>Code change | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- organise, schedule and establish communication protocols for cabling work
- monitor work activity and reallocate as required to meet specifications, work health and safety (WHS) and ensure compliance with relevant regulations and standards
- ensure cabling work is completed and records are maintained.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete unit requirements safely and effectively, the individual must:

- describe and explain Australian Communications and Media Authority's (ACMA) Competency Requirements for Telecommunications Cabling Provider Rules, legislation, codes of practice and other formal agreements that impact work activity
- describe and explain cable installations
- list features and operating requirements of test equipment
- describe and explain information required to operate equipment according to a test specification
- explain manufacturer’s requirements for safe operation of equipment
- identify specific work health and safety (WHS) requirements relating to activity and site conditions
- describe test methods and performance requirements
- identify and explain typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Compliance field of work and include access to:

- sites where staff monitoring may be required
- supervision rules
- use of tools, materials and equipment currently used in industry
- relevant regulatory and equipment documentation that impact work activities.

Note: Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Refer to the ICT Implementation Guide Companion Volume for recommended assessor details.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install simple point-to-point broadband cabling on a customer's premises.

The unit applies to technical staff who install and terminate new installations or upgrades, or maintain existing networks in domestic premises, including small office / home office (SOHO) and small commercial premises that do not have a main distribution frame (MDF) or jumperable distributor as the network boundary point.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Pre-requisite Unit

ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

OR

ICTCBL201 Install customer cable support systems

and ICTCBL202 Place and secure customer cable

and ICTCBL203 Terminate metallic conductor customer cable

and ICTCMP201 Organise and monitor cabling to ensure compliance with regulatory and industry standards

## Unit Sector

Telecommunications – Compliance



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# Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation | 1.1 Arrange access to site and organise tools and equipment for specialised broadband cabling for restricted cabling work<br>1.2 Review site according to work health and safety (WHS) and environmental requirements and assess hazards<br>1.3 Determine cable route and cabling environment meet manufacturer specifications, industry standards and regulatory requirements |
| 2. Install broadband cable | 2.1 Place and secure correct cable type according to accepted industry practice and relevant regulations and standards<br>2.2 Maintain cable and services separations in runs and crossovers to meet manufacturer specifications and relevant legislation, codes, regulations and standards<br>2.3 Fit over-voltage protection devices to cables and metallic components where required |
| 3. Terminate and test broadband cable | 3.1 Terminate cable according to accepted industry practice and relevant legislation, codes, regulations and standards<br>3.2 Maintain correct twist ratio to optimise system performance at rated level<br>3.3 Conduct compliance testing of cable installation and termination with suitable tester and record compliance<br>3.4 Supply system performance documents to client and complete cabling records and telecommunications cabling advice forms (TCA1) as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.3, 2.1, 2.2, 3.2 | • Evaluates information and products from a variety of sources to ensure appropriateness to client needs and specifications |
| Writing | 3.3, 3.4 | • Prepares documentation and correspondence using clear language, correct spelling and accurate terminology |
| Numeracy | 1.3, 2.1, 2.2 | • Make calculations appropriate for measuring and estimating materials for installations |
| Navigate the world of work | 1.2, 1.3, 2.1, 2.2, 3.1 | • Understands rights and responsibilities and complies with legal and regulatory requirements |
| Get the work done | 1.1, 2.1-2.3, 3.1-3.3 | • Plans and implements routine tasks and workload making limited decisions on sequencing, timing and collaboration, seeking assistance in setting priorities<br>• Responds to predictable routine problems and implements solutions<br>• Makes decisions within familiar situations, based on a range of predefined or routine solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule | ICTCMP2239B Perform restricted customer premises broadband cabling work: ACMA Restricted Rule | Updated to meet Standards for Training Packages.<br>Changed prerequisite units. | No equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- review site and determine cable requirements for installation
- install and terminate fixed broadband cable to industry standards and manufacturer's specifications
- verify installed network is working and accessing the internet, and perform a data rate qualification test, recording test results
- provide a report to client, documenting installation and test results
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete unit requirements safely and effectively, the individual must:

- summarise the Australian Communications and Media Authority (ACMA) cabling provider rules, cabler registration rules, regulations and standards
- describe the types of cable test methods and system performance requirements
- identify the types of cabling situations and the resultant installation requirements
- describe features and operating requirements of applicable test equipment
- determine information required to operate equipment according to a test specification
- discuss key components of codes of practice and other formal agreements that impact work activity
- identify and describe manufacturer requirements for safe operation of equipment
- specify hazards and work health and safety regulations (WHS) relating to cabling activities and site conditions


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- describe techniques for terminating data cable
- identify typical installation issues and challenges that may occur on cabling worksites
- identify and describe tools and equipment required for cabling works
- list and identify industry standards and regulatory requirements relevant to cabling
- specify cable separations and over-voltage protection requirements necessary for specific cable installations
- describe regulatory and industry standard documentation required for cabling.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Compliance field of work and include access to:

- sites where installation and termination of cabling may be conducted
- use of industry-current tools, testing equipment and personal protective equipment
- relevant regulatory and equipment documentation that impact installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTCMP501 Undertake radio communications site audit

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to undertake a radio communications site audit regarding compliance of radio frequency (RF) transmissions with relevant transmitter licence requirements.

It applies to individuals who may be field officers from regulatory authorities or other private and public organisations. They combine technical radio communications skills with broader organisational and administrative skills to conduct audits in a range of commercial and community contexts and environments, make recommendations for improvement and follow up by monitoring resulting actions.

Work functions in occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – Compliance

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for radio | 1.1 Confirm need for site audit through appropriate triggers and arrange formal approval for site access from authorised personnel |


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| | |
|---|---|
| communications site audit | 1.2 Clarify audit requirements according to relevant legislation, codes, regulations and standards, including safety and security arrangements, and action required to comply<br>1.3 Clarify audit requirements with client or project originator, where appropriate, and incorporate broader audit considerations<br>1.4 Prepare a hardcopy of site information for use as an audit validation list at site<br>1.5 Specify staff, equipment and material resource requirements for audit, based on particular site requirements ensuring equipment has been correctly calibrated and labelled<br>1.6 Check industry requirements for site and obtain industry licence where appropriate |
| 2. Undertake radio communications site audit | 2.1 Validate specific site location according to database information<br>2.2 Undertake audit tasks according to work health and safety (WHS), enterprise procedures and site specific safety requirements, and meet client or representative on site as required<br>2.3 Conduct transmission and radio frequency (RF) tests against approved specifications<br>2.4 Conduct check of transmitters for licensing conditions<br>2.5 Check transmission radio frequency against database list and obtain permission to check or alter transmission or radio frequency where appropriate<br>2.6 Confirm site meets specific RF WHS requirements and licensing requirements where appropriate<br>2.7 Confirm defined site equipment labelling comply with Australian Communications and Media Authority (ACMA) technical standards |
| 3. Complete audit administration tasks | 3.1 Update or arrange for update of required records regarding audit findings and action required, including liaison with authorised personnel as agreed<br>3.2 Monitor recommended actions to ensure compliance with findings<br>3.3 Issue enforcement actions as required<br>3.4 Finalise audit administration and return equipment and resources according to organisational procedures |

# Foundation Skills

*This section describes the language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.3, 2.5, 2.7, 3.2 | • Critically analyses documentation from a variety of sources and records and consolidates information to determine requirements |
| Writing | 1.1, 1.3, 1.4, 3.1, 3.3 | • Accurately records and completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology |
| Oral Communication | 1.1,1.3, 2.2, 3.1, 3.2 | • Presents complex information in formal situations using clear and convincing language, tone and pace appropriate for the audience and purpose |
| Numeracy | 1.4, 2.3, 2.4, 2.5, 2.6 | • Performs mathematical calculations to interpret complex tests results and information<br>• Analyses and synthesises highly embedded mathematical information in a broad range of tasks and texts |
| Navigate the world of work | 1.2, 1.6, 2.2, 2.4, 2.6, 2.7, 3.4 | • Takes full responsibility for following policies, procedures and legislative requirements and identifies organisational implications of new legislation or regulations<br>• Identifies and resolves key business issues, processes and practices that may have legal implications |
| Interact with others | 1.1, 1.3, 1.5, 3.1, 3.3 | • Collaborates with others sharing information to build strong work groups and avoid behaviours that are not conducive to a productive environment<br>• Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts |
| Get the work done | 1.2, 1.5, 1.6, 2.2-2.7, 3.2, 3.4 | • Accepts responsibility for planning and sequencing complex tasks and workloads, negotiating key aspects with others, and taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules and reviews and changes them to meet new demands and priorities<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause of a problem rather than the symptom |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTCMP501 Undertake radio communications site audit | ICTCMP5176A Undertake radio communications site audit | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTCMP501 Undertake radio communications site audit

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine the need for a site audit and gain access approvals
- conduct radio communications site audit for at least three sites with differing licensing requirements
- conduct transmission and radio frequency (RF) tests
- monitor non-compliances to ensure actions completed
- document enforcement actions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain features and functions of test equipment including:
  - digital radio communications measuring equipment
  - modulation analyser
  - power meter
  - RF termination
  - spectrum analyser
- describe the features of licensing databases
- describe information required to prepare and conduct telecommunications audits
- explain legislation, licensing requirements for transmitters, codes of practice and other formal agreements that directly impact radio communications site audits
- give an overview of transmission lines, transmitter and receiver architecture and their impact on radio communications audits


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- list required field measurements including:
  - carrier frequency
  - harmonics
  - intermodulation distortion (IMD) products
  - modulation
  - RF power
- explain specific issues related to antenna installations and their impact on radio communications interference
- explain specific work health and safety (WHS) requirements that impact the conduct of radio communications audits, including:
  - use of equipment
  - use of RF protective equipment
  - other personal protective equipment
- explain types of adjustments that need to be made to audit procedures to meet requirements of particular sites and environmental conditions
- typical issues and challenges that occur in telecommunications site audit and how these may be addressed.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Compliance field of work and include access to:

- sites on which audits may be conducted
- use of field measurement equipment currently used in industry
- relevant databases, licensing requirements and other site related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS401 Identify physical database requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify the scope, and the physical and security requirements of a database.

It applies to individuals employed as database administrators who are required to plan a database to a user's requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the database scope | 1.1 Review the requirements of the user, and the current system's architecture<br>1.2 Determine database size from the requirements and the technical specifications<br>1.3 Document the database design, and scope, of the project<br>1.4 Evaluate several database management systems against the requirements, and make the appropriate selection |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Identify the database requirements | 2.1 Review the technical specifications for the database<br>2.2 Identify the database tables and relationships<br>2.3 Identify the database data dictionary, table attributes and keys<br>2.4 Determine the database reports based on the acceptance criteria and requirements |
| 3.Identify the security requirements | 3.1 Review the system security plan<br>3.2 Clarify and confirm that the database management system, and user security, aligns with the system security plan<br>3.3 Identify, evaluate and record database performance, recovery and audit trail needs |
| 4. Seek client feedback and approval | 4.1 Present database scope, technical requirements and security documentation to the user for feedback<br>4.2 Review user feedback and adjust the database documentation, as required<br>4.3 Present database documentation to the user for final approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.1-2.4, 3.1-3.3, 4.2 | • Interprets and analyses textual information in order to gather detailed information, and confirm requirements |
| Writing | 1.3, 2.4, 3.3, 4.1, 4.2 | • Uses technically appropriate language and presents information in a format and layout that conveys factual information |
| Oral Communication | 1.1, 3.2, 4.1-4.3 | • Uses active listening, questioning and summarising skills, in order to effectively identify, and confirm, requirements |
| Get the work | 1.1-1.4, 2.1-2.4, | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering |


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| | | |
|---|---|---|
| done | 3.2, 3.3, 4.2 | relevant information, and identifying, and evaluating options against the agreed criteria<br>• Applies formal problem-solving processes when tackling an unfamiliar problem, breaking complex issues into manageable parts, identifying, and evaluating several options for action<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when identifying database scope and requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS401 Identify physical database requirements | ICADBS401A Identify physical database requirements | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of the performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS401 Identify physical database requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse client requirements
- identify the technical considerations affecting the physical design of a database
- document the database requirements
- review the security plan for the database.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the principles of databases and database design
- outline the general features, and capabilities, of current industry-accepted hardware and software products
- explain the quality assurance practices that apply to database design
- identify the client's business domain
- describe database requirements appropriate for client's business.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- special purpose materials and industry software packages
- user business requirements
- technical documentation defining the architecture platform


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- operating system specifications
- database supplier technical specifications and manuals
- data samples
- the database package.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS402 Complete database backup and restore

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish backup and recovery procedures, in accordance with organisational requirements, and consistent with the database architecture.

It applies to individuals who are technical support personnel, such as help-desk supervisors, information and communications technology (ICT) support technicians, database support technicians and user-support specialists.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review the database architecture to plan backup and recovery | 1.1 Examine the architecture of a database file system<br>1.2 Determine the most appropriate methods for backup and recovery<br>1.3 Identify and examine the likely or possible risk and failure scenarios<br>1.4 Prepare a backup maintenance schedule |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Prepare a contingency plan |
| 2. Determine backup methods appropriate to database requirements | 2.1 Evaluate the range of backup and restoration methods, based on organisational and security standards, and on the assessment of likely, or possible, failure scenarios<br>2.2 Complete full off-line backups according to organisational and security standards, with minimal down time<br>2.3 Complete online file backups, as determined by organisational and security standards, with minimal down time<br>2.4 Employ disk mirroring and redundant array of inexpensive disks (RAID) hard disk configurations to keep copies of files<br>2.5 Arrange off-site copies of backup files |
| 3. Establish recovery points and disaster-recovery procedures | 3.1 Determine database recovery points based on the backup arrangements, according to organisational guidelines<br>3.2 Test the restore process to ensure that the database can be restored to a given recovery point, with minimal down time<br>3.3 Complete the restoration of the database to the point of failure, without loss of committed transactions |
| 4. Create and deploy a standby database | 4.1 Create or set up a standby database, in order to meet organisational guidelines<br>4.2 Implement a standby database to support critical business functions<br>4.3 Prepare the documentation for a standby database |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1 | • Analyses complex textual information in order to evaluate a range of backup and restoration methods |
| Writing | 1.4, 1.5, 4.3 | • Uses technically specific language in developing plans and documentation<br>• Articulates information, and presents this information, in a clear, concise, sequential and |


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| | | |
|---|---|---|
| | | grammatically-correct manner, and in a writing style that is appropriate to the audience |
| Oral Communication | 1.2, 1.3, 1.4, 2.1 | • Facilitates successful discussions by employing effective listening, questioning and summarising skills to ensure that appropriate information is gathered |
| Navigate the world of work | 2.2, 2.3, 3.1, 4.1 | • Recognises and follows, both explicit and implicit protocols, and meets expectations associated with own role when complying with organisational and security standards, and guidelines |
| Get the work done | All | • Takes responsibility for planning, sequencing and prioritising tasks, and own workload for efficiency, and for effective outcomes<br>• Makes routine decisions, and implements standard procedures, for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response to these, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, search and enter data, and code, present information. and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS402 Complete database backup and restore | ICADBS402A Complete database backup and restore | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS402 Complete database backup and restore

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine and prepare the appropriate methods for backup, maintenance and recovery, including a contingency plan
- implement the backup and restore procedures, with minimum disruption to the business
- create, implement and document a standby database.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the basic principles of:
  - diagnostic tools
  - structured query language (SQL)
  - databases
  - tuning methodologies
- outline and apply the principles of:
  - backup and recovery methods
  - database administration
  - database security
  - open file backup procedures and restore operations.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- equipment and materials
- documentation standards
- backup and recovery policies
- sites with a representative range of current industry standard software and diagnostic tools
- database package with data
- technical records
- organisational guidelines
- vendor documentation
- the server, and a networked personal computer, on which to conduct the backup and restore procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS403 Create basic databases

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, develop and test a database in order to meet a specification.

It applies to individuals who may be either database, or web designers, required to create a simple database to store information for an online application, using a simple entity relational database.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the requirements for the database | 1.1 Determine the information that the database is required to hold<br>1.2 Develop a written requirement report for the functionality of the database<br>1.3 Complete the documentation, and submit it to the appropriate person for approval |
| 2. Use data modelling to | 2.1 Design an entity-relationship (ER) diagram to model the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| design the database to suit requirements | relationships between the entities and the attributes that the database will hold<br>2.2 Develop primary and foreign keys to link the entities<br>2.3 Develop a data dictionary<br>2.4 Complete the documentation, and submit it to the appropriate person for approval |
| 3. Create a database on a web or database server | 3.1 Use the appropriate language on a web or database server to create one or more databases<br>3.2 Use the appropriate language on a web or database server to create tables<br>3.3 Populate the database fields |
| 4. Test the database and debug | 4.1 Test the database on the web or database server<br>4.2 Ensure that the information represented matches the requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3 | • Analyses textual information to establish requirements |
| Writing | 1.2, 1.3 | • Uses technically appropriate language and presents information in a format, and layout, that is appropriate to the requirements |
| Oral Communication | 1.1, 1.3, 2.4 | • Listens, and participates, in oral exchanges to effectively identify and confirm requirements<br>• Presents information using appropriate and effective language in negotiating the best outcome |
| Navigate the world of work | 1.3, 2.4 | • Recognises and follows, both explicit and implicit, procedures, and meets the expectations associated with own role when submitting the documentation for approval |
| Interact with | 1.3, 2.4 | • Recognises and applies the protocols governing what to communicate, with whom and how, in a |


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|---|---|---|
| others | | range of work contexts, when submitting the documentation to the appropriate person for approval |
| Get the work done | 1.1, 2.1-2.4, 3.1-3.3, 4.1, 4.2 | • Plans a range of routine, and some non-routine, tasks, accepting stated goals and aiming to achieve them efficiently<br>• In more complex, non-routine situations, uses a formal decision-making process, setting or clarifying goals, gathering information, and identifying and evaluating several choices against a limited set of criteria<br>• Applies formal problem-solving processes when tackling an unfamiliar problem, breaking complex issues into manageable parts, and identifying and evaluating several options for action<br>• Understands key principles and concepts underpinning the design, and operation, of digital systems and tools, and applies these when designing and creating a database |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS403 Create basic databases | ICADBS403A Create basic databases | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS403 Create basic databases

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research client requirements for a database solution
- design a database that meets client requirements
- create a database on a web hosting service or server to meet client requirements by a due date
- test and debug the database.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of open platforms, including browsers and databases
- list the processes associated with the creation of entities, attributes, and in populating fields, using both software solutions and script- based input
- describe data-modelling techniques to design a database
- outline the steps in database design, modelling and implementation
- describe the internet operation related to web servers and clients
- identify the naming conventions appropriate to database design
- identify security restrictions on servers, incorporating some theoretical concepts
- describe best practice communication, and accessibility, for audiences with special needs.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- equipment, materials and industry software packages


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- database and database management system
- the internet and web browser software
- software for creating entity-relationship (ER) diagrams
- software development environment
- the server.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS404 Identify and resolve common database performance problems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to diagnose database problems, as well as to configure and tune the database in order to maintain consistent performance.

It applies to individuals who are experienced technical support personnel, such as help-desk supervisors, database support technicians, information and communications technology (ICT) support technicians, and user-support specialists, who are responsible for maintaining the performance of a database.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Diagnose problems | 1.1 Determine an appropriate database performance diagnostic tool to use, based on organisational database requirements, and vendor recommendations<br>1.2 Run a diagnostic tool to identify the issues causing degradation of the database's performance<br>1.3 Determine and record where the inappropriate use/s of |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | database and temporary table spaces occur<br>1.4 Carry out appropriate fixes, based on diagnostic results |
| 2. Configure the database | 2.1 Adopt a distributed files architecture to minimise input and output (I/O) contention<br>2.2 Ensure that database backup procedures are appropriate for the method of data storage<br>2.3 Reconfigure rollback segments<br>2.4 Configure the database and test its performance |
| 3. Tune the database | 3.1 Track module performance according to its specifications<br>3.2 Monitor and tune the efficiency of structured query language (SQL), as required<br>3.3 Monitor and measure the performance of shared pool, blocks and buffers<br>3.4 Detect, identify and resolve any contentions that may arise in the real-time operation of the database<br>3.5 Reconfigure the database according to specifications |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.2 | • Analyses and interprets textual information in order to establish performance issues and their corresponding solution(s) |
| Writing | 1.3 | • Uses technically appropriate language and format, when recording data |
| Oral Communication | 1.1 | • Uses effective listening, questioning and summarising skills to ensure that the correct information is gathered |
| Get the work done | All | • Uses a formal, logical planning processes, together with an increasingly intuitive understanding of context, to identify relevant information and risks, and to identify and evaluate alternative strategies and resources |


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|---|---|---|
| | | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options<br>• Uses familiar digital technologies and systems to access information, search and enter data, code, present information and communicate with others, while maintaining data security and safety at all times |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS404 Identify and resolve common database performance problems | ICADBS404A Identify and resolve common database performance problems | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS404 Identify and resolve common database performance problems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- correctly identify common database problems
- select appropriate solutions to solve the problem
- implement solutions to improve database performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of database design and structured query language (SQL)
- describe the principles of database administration
- describe diagnostic tools and database tuning methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- special purpose materials
- industry software packages
- diagnostic tools
- database operating on a network.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS407 Monitor physical database implementation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake database-management system modelling and to monitor database performance.

It applies to database support staff required to test and scrutinise the operation of a physical database, in order to ensure that it functions as efficiently as possible.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Undertake database management system modelling | 1.1 Review the database prototype as appropriate, to determine the acceptance criteria and performance standards<br>1.2 Load the test data according to the technical sequence detailed in the relevant documentation<br>1.3 Generate a test schedule for the database, of tasks to be performed and the results expected |
| 2. Monitor database performance | 2.1 Evaluate database performance against the acceptance criteria and performance standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Identify discrepancies in the results, when the expected outcomes do not meet the acceptance criteria<br>2.3 Identify areas needing enhancement, and document the changes to be made<br>2.4 Modify the database according to project standards<br>2.5 Repeat performance testing until the expected results are achieved |
| 3. Seek client feedback and sign-off | 3.1 Present test results in a document, and provide to the client for feedback<br>3.2 Incorporate client change requests as appropriate<br>3.3 Obtain client sign-off to the monitoring process |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1-2.3, 3.2 | • Analyses and interprets textual information to establish performance requirements and discrepancies |
| Writing | 1.3, 2.3, 3.1 | • Uses appropriate language, layout and format in logically presenting technical data and other information |
| Oral Communication | 1.1, 3.1-3.3 | • Listens, and participates, in oral exchanges in order to effectively identify and confirm requirements<br>• Presents information using appropriate and effective language in order to convey information |
| Get the work done | 1.1-1.3, 2.1-2.5 | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against the agreed criteria<br>• Applies key principles and concepts underpinning the design and operation of digital systems, and tools |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS407 Monitor physical database implementation | ICADBS407A Monitor physical database implementation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS407 Monitor physical database implementation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify technical considerations affecting the implementation of a database
- analyse and monitor performance issues during the implementation of a database
- modify a database to meet project and client performance requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain
- list current industry-accepted hardware and software products
- describe requirements of basic database design
- identify required database performance standards
- outline quality assurance practices
- outline testing and benchmarking processes
- list three or more current principles of databases.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- industry software packages
- the database management system (DBMS)
- the target database prototype


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- testing and benchmarking software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS408 Link an RFID system to a database

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to transfer radio frequency identification (RFID) data to a database.

It applies to individuals who are required to maintain RFID data and make it available to an RFID system.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the data mapping and integration requirements | 1.1 Identify and document the format of the data from the RFID system, including data schema<br>1.2 Collect the required data, target database requirements and implementation details, ensuring the uniqueness of entries |
| 2. Perform data transition | 2.1 Write and test conversion programs, and use conversion tools<br>2.2 Ensure clean data take-on by converting according to database requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Use database adaptors and interfaces for data transition |
| 3. Check data transition | 3.1 Verify that the data transition has been completed, according to the requirements<br>3.2 Document programs, procedures and processes, according to the requirements of the client<br>3.3 Provide conversion reports to the client for sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.1 | • Analyses and interprets textual information to establish requirements and verify data |
| Writing | 1.1, 1.2, 2.1, 3.2, 3.3 | • Uses appropriate technical language, format and layout when recording data and producing technical documentation |
| Oral Communication | 1.1, 1.2, 3.1, 3.3 | • Uses active listening, questioning and summarising skills when gathering information and negotiating best project outcome |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 2.3, 3.1 | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication during data mapping and integration requirements<br>• Uses familiar digital technologies and systems to access information, search and enter data and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDBS408 Link an | ICADBS408A Link an | Updated to meet | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| RFID system to a database | RFID system to a database | Standards for Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS408 Link an RFID system to a database

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify formats of radio frequency identification (RFID) system output and data fields in database
- analyse, write, install and test conversion programs
- identify format of data fields of database
- write, or obtain, and install conversion software
- compile entries in database reports.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the client database's data structures
- describe client data management, data security policy, and procedures
- describe and apply data analysis in determining;
  - data types
  - data structures
  - queries
  - report design
- identify the data source names in use by the organisation
- describe the open database connection (ODC)
- list the primary files, and requirements, of transaction logs to confirm appropriate database activity
- outline quality assurance practices
- identify the required software tools


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- outline the system’s data requirements
- define the system's current functionality
- identify the website foundation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- industry software packages
- conversion tools
- the database’s software
- networked computers
- organisational guidelines
- radio frequency identification (RFID) equipment specifications.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS409 Monitor and administer a database

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage databases including start up, operation, testing, monitoring and maintenance, in accordance with organisational requirements.

It applies to individuals employed as database support staff who are required to maintain a database, monitor its performance and access, as well as to administer its security.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Start up a database | 1.1 Configure the system for a database start-up<br>1.2 Monitor the database start-up and operation for irregularities |
| 2. Manage the database | 2.1 Take action to ensure that a data dictionary has been compiled and that data structures are in place<br>2.2 Maintain data integrity constraints, according to business requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Create and design indexes, and multiple-field keys, according to business requirements<br>2.4 Monitor the locking options chosen for the database<br>2.5 Confirm that recent backups of the database have been stored, and that backups can be retrieved as a full working copy<br>2.6 Monitor data storage space for ongoing viability, and resize as needed<br>2.7 Update the data according to organisational guidelines |
| 3. Manage database access | 3.1 Allocate or remove access privileges according to user status<br>3.2 Monitor network server log-in log file for illegal log-in attempts, or for security breaches<br>3.3 Manage system resources in the context of database administration |
| 4. Document database maintenance tasks | 4.1 Document changes to database start-up procedures<br>4.2 Itemise database management structures<br>4.3 File authorisations for access changes<br>4.4 Detail the procedures for monitoring log files<br>4.5 Record the procedures to manage systems resources |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.5, 3.2 | • Analyses textual information to determine start-up and operation irregularities |
| Writing | 2.7, 4.1, 4.2, 4.4, 4.5 | • Uses appropriate language and required format for updating data, and presenting information in technical and business documents |
| Oral Communication | 2.5, 3.1 | • Uses active listening and questioning skills when determining status of periodic tasks and activities |
| Navigate the | 2.7 | • Follows organisational requirements for updating |


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| | | |
|---|---|---|
| world of work | | data |
| Get the work done | All | • Monitors actions against stated goals during compilation of data dictionary and data structures, and when managing a database, according to business requirements<br>• Uses a formal decision-making process, setting or clarifying goals, gathering information, and identifying, and evaluating several choices against a limited set of criteria<br>• Understands key principles and concepts underpinning the design, and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS409 Monitor and administer a database | ICADBS409A Monitor and administer a database | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS409 Monitor and administer a database

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- configure a database start-up
- confirm data integrity
- monitor data storage requirements for database
- update data
- update database access.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline backup and recovery methodologies
- explain the architectural design of relational databases
- explain the concept of database security
- outline the process involved in the selection and use of appropriate database management tools
- explain the principles of structured query language (SQL)
- outline the tasks involved in database administration
- outline the tuning methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:


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- industry software packages
- a live database, preferably on a local area network (LAN) on which there is a server that offers log-in functionality.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS412 Build a database

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to build, implement, test and evaluate a database, using an established design.

It applies individuals employed as database administrators and designers who are required to build databases for information storage and retrieval requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm the database design | 1.1 Review the database design documentation, including data structures, queries, reports and user interface<br>1.2 Compare the database access and security feature design with the organisational security plan<br>1.3 Document inconsistencies in the database and security design |
| 2. Create a prototype | 2.1 Develop a prototype according to the database design<br>2.2 Populate database tables with suitable data, including |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | current business data<br>2.3 Write conversion programs to import data from existing systems<br>2.4 Develop test data to assess database features<br>2.5 Assess functionality of the prototype with the client, including identifying errors in the program code, and modifying screens, and reports<br>2.6 Incorporate feedback from the client into the prototype<br>2.7 Obtain client sign-off for the prototype |
| 3. Test the database | 3.1 Develop an implementation plan for the database<br>3.2 Install database management system software on the network<br>3.3 Populate the database tables with business data<br>3.4 Implement security and access controls<br>3.5 Test database output and security controls, and record results |
| 4. Evaluate the database | 4.1 Review the database with the client for final approval<br>4.2 Complete database documentation<br>4.3 Identify and document user training requirements<br>4.4 Seek and secure client acceptance of the database |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.5, 2.6, 4.1, 4.3 | • Analyses and interprets textual information in order to establish client system requirements and establish design inconsistencies |
| Writing | 1.3, 2.3, 2.7, 3.1, 3.5, 4.2 | • Uses appropriate technical terminology in recording test results and discrepancies<br>• Produces reports and documentation that are cohesive and well-structured, in order to convey detailed and |


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| | | |
|---|---|---|
| | | accurate information, and instructions |
| Oral Communication | 1.1, 2.5-2.7, 4.1, 4.3, 4.4 | • Uses active listening, questioning and summarising skills to establish client requirements, training needs and when seeking product or stage approval |
| Interact with others | 4.4 | • Recognises and applies the protocols governing what to communicate, with whom, and how |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses a formal decision-making process, setting or clarifying goals, gathering information, and identifying and evaluating several choices, against a limited set of criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between different options<br>• Understands the key principles and concepts underpinning the design, and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS412 Build a database | ICADBS412A Build a database | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS412 Build a database

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify client data management and security requirements
- produce a prototype data base
- populate and perform tests
- discuss results with client for approval
- implement the data base with the client.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of data base design including :
  - database management system (DBMS) fundamentals particularly during the design phase
- describe the functions and features of a database
- describe logical data modelling
- outline object-model design concepts related to:
  - developing data structures
  - development of a prototype
  - queries
  - screens
  - reports
- explain the physical design concepts in relation to a prototype
- recognise and describe run-time facilities related to implementing a live database and operation of a prototype
- describe and apply structured query programming language (SQL).


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- industry software packages
- business requirements and strategy
- database design documentation
- database software
- database programming language.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS501 Monitor and improve knowledge management system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to monitor and improve a knowledge management system.

It applies to individuals who are knowledge engineers required to support and maintain an existing knowledge management system.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Investigate the knowledge management system | 1.1 Review the structure of the existing knowledge management system, and develop an understanding of its operation<br>1.2 Interview the client and staff to determine information requirements<br>1.3 Identify frequently requested information<br>1.4 Create a structure for organising that information |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Document the structure and forward to the appropriate person for approval |
| 2. Create a knowledge management system | 2.1 Retrieve the identified information<br>2.2 Organise information to follow the approved structure<br>2.3 Document the information structure |
| 3. Distribute and monitor knowledge management system documentation | 3.1 Distribute knowledge management system documentation to the client and staff<br>3.2 Gather feedback from the client and staff, and incorporate into improving systems and processes<br>3.3 Monitor the use of the knowledge management system to determine its effectiveness<br>3.4 Make changes to the knowledge management system<br>3.5 Make knowledge management system documentation available<br>3.6 Implement and monitor process improvements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 3.2, 3.6 | • Recognises and interprets textual information to determine client information requirements |
| Writing | 1.4, 1.5, 2.2, 2.3 | • Records key information resulting from data gathering, issues and prepares documentation using basic punctuation, correct spelling, clear and instructional language |
| Oral Communication | 1.2, 1.5, 3.1, 3.2, 3.6 | • Obtains information by listening and questioning, and participates in a verbal exchange using detailed and clear language to articulate and confirm requirements |
| Interact with others | 3.1, 3.2 | • Participates in complex formal and informal conversations relevant to own role, initiating and taking the lead where appropriate in the context of gathering information and feedback from the client |


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| | | |
|---|---|---|
| | | and staff |
| Get the work done | All | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against the agreed criteria<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS501 Monitor and improve knowledge management system | ICADBS501A Monitor and improve knowledge management system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS501 Monitor and improve knowledge management system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- monitor existing knowledge management systems
- implement strategies to improve a new, or existing, knowledge management system.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline current practices for information management within an organisation
- identify the information sources available within an organisation
- recognise current knowledge management systems
- explain database structures and their construction
- outline procedures for monitoring and reviewing knowledge managements systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- industry software packages
- organisational databases
- information requirements
- information repositories
- current knowledge management system(s).


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS502 Design a database

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish client needs and technical requirements and to design a database that meets those requirements.

It applies to individuals employed as database administrators and designers who are required to design databases.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine database requirements | 1.1 Meet with the client, and conduct a user-needs analysis, to determine database functionality<br>1.2 Analyse the results of a user-needs analysis to identify technical requirements<br>1.3 Develop a conceptual model of the database<br>1.4 Submit the conceptual model to the client for review<br>1.5 Evaluate client feedback and make changes as required |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Develop a logical data model | 2.1 Identify the attributes and determine the data types<br>2.2 Undertake the normalisation of attributes<br>2.3 Develop an entity-relationship (ER) diagram in order to clarify the cardinality of relationships<br>2.4 Document attributes, normalised data, and the ER diagram<br>2.5 Forward documentation to the client for confirmation |
| 3. Design the data structures | 3.1 Confirm primary and foreign keys for tables<br>3.2 Review client business rules<br>3.3 Identify the referential integrity constraints<br>3.4 Establish database management system constraints and incorporate into database design<br>3.5 Develop the validation rules for data<br>3.6 Design indexes and develop the data dictionary<br>3.7 Document the database design |
| 4. Design queries, screens and reports | 4.1 Design the user interface for database, including menus, input screens and outputs<br>4.2 Design queries, based on requirements<br>4.3 Design output reports, based on requirements<br>4.4 Compare the physical design with the conceptual model, or user-needs analysis<br>4.5 Incorporate changes as required |
| 5. Design access and security systems | 5.1 Review the business security plan as a basis for commencing the access and security design<br>5.2 Design the password and access system for the database<br>5.3 Identify multiple-user requirements<br>5.4 Develop client access profiles using the client business model |
| 6. Confirm the database design | 6.1 Identify the database backup and recovery requirements<br>6.2 Develop and document the database backup and restore procedures<br>6.3 Submit the database, and documentation, to the client for final approval |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.5, 2.1, 3.2, 3.3, 4.4, 5.1, 6.1 | • Interprets textual information obtained from a range of sources and determines how content may be applied to requirements |
| Writing | 1.3, 2.3, 2.4, 3.7, 6.2, 6.3 | • Develops content in a manner that supports the purposes and format of the requirements using appropriate structure, layout and specialised technical and programming language |
| Oral Communication | 1.1, 1.4, 1.5, 2.5, 3.2, 5.1, 6.3 | • Uses listening, questioning and summarising techniques to identify needs, and uses specific and clear language when engaging with others |
| Numeracy | 3.4, 4.1, 4.3, 4.4 | • Makes measurements and performs calculations for work layout, determine field lengths and table size and estimate database size |
| Get the work done | All | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant information and risks, identify and evaluate alternative strategies and resources<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against the agreed criteria<br>• Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDBS502 Design a database | ICADBS502A Design a database | Updated to meet Standards for Training Packages. | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | Minor edits to clarify intent of the performance criteria | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS502 Design a database

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and confirm client requirements for a database application
- design database elements including:
  - structure
  - indexes
  - queries
  - screens
  - reports
- design secure access to the database
- confirm final database design with the client.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the process of data analysis, particularly in determining data types and data structures, query and report design
- describe the data modelling related to developing the conceptual data model
- explain how data redundancy is identified
- describe database management system (DBMS) fundamentals, particularly during the design phase
- explain encryption and authentication as these apply to database security features
- outline the functions and features of data types, and data structures
- describe the functions, and features, of databases
- describe logical design concepts, particularly those related to designing data structures, queries screens and reports


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- outline the object model design concepts, particularly those related to designing data structures, queries, screens and reports
- explain the term ‘scalability’ as it applies to databases.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- equipment and materials
- current industry accepted database software
- network or other system for remote or multi-user access
- business requirements
- computer-aided software engineering (CASE) or diagramming software.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS503 Create a data warehouse

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, develop and implement a data warehouse within an organisation.

It applies to individuals who are senior database staff required to provide data warehouse functionality for their organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the required data and sources | 1.1 Identify the required organisational data, according to the enterprise's knowledge management strategy<br>1.2 Identify the subject areas, according to the business processes and the required enterprise data<br>1.3 Explore the operational data, define the warehouse sources, and record the outcomes<br>1.4 Develop the warehouse source specifications, according to the existing data tables and files |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Determine warehouse operational steps and processes | 2.1 Develop the warehouse targets, according to the business processes and the required enterprise data<br>2.2 Identify the warehouse agents, according to the system's configuration<br>2.3 Identify and develop, warehouse steps and processes |
| 3. Design and develop warehouse features | 3.1 Design and develop the warehouse user interface, according to the principles of user interface design<br>3.2 Develop and implement the warehouse security strategy, according to the enterprise's security plan<br>3.3 Identify dimension tables and fact tables, according to the required enterprise data<br>3.4 Develop the warehouse information catalogue, according to the enterprise's knowledge management strategy |
| 4. Test and implement the data warehouse | 4.1 Test data the warehouse against the business requirements, to ensure that iterations meet the business objectives<br>4.2 Recommend changes to business processes, to ensure compatibility with the data warehouse and the knowledge management strategy<br>4.3 Implement the data warehouse<br>4.4 Establish an ongoing maintenance schedule to keep the system efficient<br>4.5 Benchmark and document the performance level of the data warehouse |
| 5. Finalise work processes | 5.1 Arrange for users to have ongoing training in the data warehouse<br>5.2 Validate the test results<br>5.3 Obtain sign-off for the data warehouse |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1-1.4, 2.2, 2.3, 3.3, 4.5, 5.2 | • Critically analyses documentation from a variety of sources and records, and consolidates, information to determine requirements |
| Writing | 1.3, 2.1, 2.3, 3.1, 3.2, 3.4, 4.2, 4.4, 4.5, 2.2, 5.3 | • Collates and compiles data and text, using clear and detailed language, in order to convey specific information, requirements and recommendations |
| Oral Communication | 1.1-1.3, 2.1, 2.3, 4.2, 4.3, 5.1-5.3 | • Uses effective listening, questioning and summarising skills, to articulate requirements and convey information clearly |
| Numeracy | 4.5 | • Perform mathematical calculations to analyse the cost benefit of the data warehouse project |
| Navigate the world of work | 3.2, 3.4, 4.1, 4.2 | • Recognises and follows, explicit and implicit protocols, and meets the expectations associated with own role when obtaining sign-off for the data warehouse<br>• Modifies or develops organisational policies and procedures, to comply with legislative requirements and organisational goals |
| Get the work done | All | • Develops plans to manage relatively complex, non-routine tasks, with an awareness of how they may contribute to the longer-term operational and strategic goals<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options, against the agreed criteria<br>• Uses and investigates new digital technologies and applications to manage and manipulate data, and to communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS503 Create a | ICADBS503B Create | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| data warehouse | a data warehouse | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS503 Create a data warehouse

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare the specifications for a data warehouse, from a range of organisational information
- design a data warehouse system that reflects the current, and future, business specifications, and also the business's knowledge management strategy
- test the data warehouse system
- implement the data warehouse design.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the functions and features of:
  - data warehousing and data mining
  - dimension tables and fact tables
  - various steps and processes, including transformer steps, program steps, structured query language (SQL) steps, and user-defined program steps
  - subject areas, warehouse sources and warehouse targets
  - warehouse agents and agent sites
- outline the business operating systems related to the data sources
- describe the decision support systems related to the knowledge management strategies
- define the parameters for a security plan
- outline the system's configuration parameters
- describe the key features of "Big Data" including:
  - data access speeds and processing


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- the information handled by large corporations
- distribution, via the cloud, across the database servers.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- equipment and materials
- industry software packages
- the business requirements
- computers configurable as information servers
- the enterprise's knowledge management strategy
- internet connectivity tools
- the local area network (LAN), with a relational database management system (DBMS)
- proxy server software
- specialised internet security software.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS504 Integrate database with a website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure the database is integrated with a website.

It applies to individuals employed as web developers who are responsible for creating data-driven web applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Connect to the database | 1.1 Identify site data needs from the technical requirements<br>1.2 Connect to the database from a web application using a web development language |
| 2. Retrieve data from database and display on web pages | 2.1 Retrieve data using structured query language (SQL)<br>2.2 Display the data in the most appropriate control<br>2.3 Format the data so that it is displayed in the most effective way |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Update the database data from user input | 3.1 Update the existing data stored in the database with user-supplied input<br>3.2 Insert the data in the database with user-supplied input<br>3.3 Delete the data stored in the database<br>3.4 Validate the data and check for errors |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1, 3.3, 3.4 | • Interprets textual information from the sources in order to identify relevant and key information |
| Writing | 1.2, 2.3, 3.1, 3.2 | • Writes and edits computer input data, code and technical data, ensuring correct syntax and accuracy |
| Get the work done | All | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against agreed criteria<br>• Uses analytical processes to decide on a course of action, and establishes the criteria for deciding between different options<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world, and uses these to connect to a database from a web application, retrieving, displaying and updating data |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalent status |
|---|---|---|---|
| ICTDBS504 Integrate database with a website | ICADBS504A Integrate database with a website | Updated to meet Standards for Training Packages. | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalent status |
|---|---|---|---|
| | | Minor edits to clarify intent of the performance criteria | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS504 Integrate database with a website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- access database using a web development language
- retrieve and display web-based data
- update web-based data.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe a database structure
- outline internet technology as it relates to the use of databases
- identify and apply programming control structures, including object-oriented programming and structured query language (SQL)
- explain web programming concepts, including:
  - authentication and web security
  - hypertext transfer protocol (HTTP)
  - session management
  - defining the principles of stateless programming.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- equipment


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- industry software packages
- the requirements documentation
- a web server
- a database
- the web development environment
- browsers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS601 Build a data warehouse

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, develop and implement a data warehouse within an organisation.

It applies to individuals managing a knowledge management team, or works in a senior role in such a team with line management responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm the database design | 1.1 Review the database design document, including the data structures, queries, reports and user interface<br>1.2 Identify any possible "Big Data" applications<br>1.3 Compare the database access and security design, with the business security plan |
| 2. Identify the required data and sources | 2.1 Identify the required data, with reference to the enterprise's knowledge management strategy<br>2.2 Identify subject areas, with reference to the business |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | processes and the required data<br>2.3 Explore operational data, define the warehouse sources and record the outcomes<br>2.4 Develop the warehouse source specifications, with reference to the existing data tables and files |
| 3. Determine warehouse operational steps and processes | 3.1 Develop the warehouse targets, with reference to the business processes and the required data<br>3.2 Identify the warehouse agents, according to the system's configuration<br>3.3 Identify and develop, warehouse steps and processes |
| 4. Design and develop the warehouse features | 4.1 Design and develop the warehouse user interface, with reference to the principles of user interface design<br>4.2 Develop and implement the warehouse security strategy, according to the enterprise's security plan<br>4.3 Identify dimension tables and fact tables, with reference to the required data<br>4.4 Cost the technology requirements for the implementation of the warehouse security strategy, and include them in e-business budgeting<br>4.5 Develop a warehouse information catalogue, with reference to the enterprise's knowledge management strategy |
| 5. Test and implement the data warehouse | 5.1 Test the data warehouse against the business requirements, to ensure that iterations meet the business objectives<br>5.2 Recommend changes to business processes, to ensure compatibility with the data warehouse and the knowledge management strategy<br>5.3 Implement the data warehouse<br>5.4 Establish an ongoing maintenance schedule in order to keep the system efficient<br>5.5 Benchmark and document, the performance level of the data warehouse |
| 6. Finalise work processes | 6.1 Arrange for users to have ongoing training in the data warehouse<br>6.2 Validate the results<br>6.3 Obtain sign-off for the data warehouse |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 2.3, 6.2 | • Interprets the textual information obtained from a range of sources, and determines how the content may be applied to the requirements |
| Writing | 2.4, 3.1, 3.3, 4.2, 4.5, 5.5 | • Develops content in a manner that supports the purposes and format of the requirements, using the appropriate structure, layout, and specialised technical and programming language |
| Oral Communication | 2.1, 2.2, 6.1, 6.3 | • Uses listening, questioning and summarising techniques to identify needs, and uses specific and clear language when engaging with others |
| Numeracy | 4.4 | • Uses the relevant information in completing cost benefit analyses |
| Navigate the world of work | 2.1, 2.2, 4.2, 4.5 | • Works autonomously, making high-level decisions to achieve, and improve, organisational goals<br>• Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Develops and implements strategies that ensure that the organisational policies, procedures and regulatory requirements are being met<br>• Monitors and reviews the organisation’s policies, procedures, and adherence to legislative requirements, in order to implement and manage change |
| Get the work done | All | • Develops plans to manage relatively complex, non-routine tasks, with an awareness of how they may contribute to longer-term operational and strategic goals<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account<br>• Uses systematic, analytical processes in complex non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options, against the agreed criteria<br>• Uses a systematic process to identify possible |


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| | | |
|---|---|---|
| | | solutions to a difficult problem<br>• Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and uses these to build a data warehouse |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS601 Build a data warehouse | ICADBS601B Build a data warehouse | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS601 Build a data warehouse

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review and document the database's design, and security, for the current and future business requirements
- identify and document, the specifications for the storage of different types and sources of data
- develop a cost benefit analysis for a data warehouse
- design, develop, test, and implement a data warehouse that reflects the business's knowledge management strategy
- document the operation of the data warehouse.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the business operating systems related to the data sources
- outline database management system (DBMS) fundamentals, in order to facilitate the extraction of data
- define "Big Data" and summarise its use and management, in the corporate sector
- identify and apply, the decision-support systems related to knowledge management strategies
- explain encryption and authentication as they apply to database security features
- outline the functions and features of dimension tables and fact tables
- explain the installation and use of proprietary software
- explain the logical database model knowledge needed to facilitate data extraction
- describe the relationship between databases and data warehouses


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- define the levels of technical documentation required for newly developed data management systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- equipment and materials
- industry software packages
- data in a DBMS
- a data-warehousing tool.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS602 Develop a knowledge management strategy

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop a knowledge management strategy for an organisation. It includes analysing existing systems, determining requirements, and developing a strategy to meet those requirements.

It applies to individuals who may be managing a knowledge management team, or who are working in a senior role with line management responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse existing knowledge management arrangements | 1.1 Identify existing arrangements for the capture and use of knowledge, and information, from both internal and external sources<br>1.2 Distinguish between arrangements for managing knowledge and information management<br>1.3 Analyse the importance of knowledge management concepts in the identified organisation<br>1.4 Evaluate the effectiveness of existing procedures and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | systems in meeting the needs of clients, organisational aims, objectives, and standards<br>1.5 Identify the improvements in the organisation's strategic use of knowledge, and prepare a cost-benefit analysis |
| 2. Evaluate knowledge management options | 2.1 Investigate the methods for capturing and using knowledge held by people within a business, and identify and evaluate barriers to their use<br>2.2 Evaluate knowledge management software and make recommendations regarding its usefulness, and likely benefit, to the organisation<br>2.3 Investigate incentives and reward systems to support knowledge management for their relevance to a business<br>2.4 Determine non-technical business requirements for maintaining and accessing an integrated knowledge database, according to organisational requirements |
| 3. Develop a knowledge-management strategy | 3.1 Develop a knowledge management strategy in consultation with staff for the capture and strategic use of organisational knowledge<br>3.2 Design business processes to support knowledge management, according to the organisation's knowledge management strategy, and budget<br>3.3 Plan an executive support system as part of the knowledge management strategy, to improve managerial decision-making according to organisational requirements<br>3.4 Cost the technology requirements for the implementation of the strategy, and include this costing in knowledge management budgeting<br>3.5 Design, or redesign, processes for a periodic review of knowledge management within the business in order to ensure ongoing efficiency and effectiveness<br>3.6 Ensure that the knowledge management strategy meets the organisational requirements identified in its overall business plan, and knowledge management strategy |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1-2.4, 3.1, 3.2 | • Interprets textual information obtained from a range of sources, and determines how this content may be applied to requirements |
| Writing | 1.5, 2.2, 3.1 | • Develops content in a manner that supports the purposes and format of the requirements using appropriate structure, layout and specialised technical language |
| Oral Communication | 1.1, 1.3, 1.4, 2.1-2.4, 3.1, 3.4 | • Uses listening, questioning and summarising techniques to identify needs, and uses specific and clear language when engaging with others |
| Numeracy | 1.5, 3.4 | • Uses mathematical formulas and calculations to perform a cost-benefit analysis |
| Get the work done | All | • Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences, and consider implementation issues and contingencies<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options, and seeking input and advice from others before taking action<br>• Experiments with the possibilities of new systems, devices, and applications before conducting a more sophisticated analysis of benefits, costs and risks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDBS602 Develop a knowledge management strategy | ICADBS602A Develop a knowledge management strategy | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of the | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | performance criteria | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS602 Develop a knowledge management strategy

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- choose a knowledge management option that meets organisational requirements
- develop a knowledge management strategy able to be implemented.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the importance of knowledge management in contemporary organisations
- differentiate between the culture of the business versus traditional business models
- explain database design concepts
- identify both internal and external sources of information
- outline legal, ethical and security issues relating to knowledge management
- explain records management principles
- identify relevant government legislation that may affect business operation, especially in regard to:
  - workplace health and safety (WHS)
  - environmental issues
  - equal opportunity
  - industrial relations
  - anti-discrimination
- describe the structures of organisations and their business goals.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- equipment and materials
- industry software packages
- sample organisations suitable for the implementation of knowledge management (including business plans).

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDBS603 Determine suitability of database functionality and scalability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify the current and future business requirements for a database.

It applies to individuals with senior system-operations or line management responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Database

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine context of the business need or problem | 1.1 Develop the database objectives and identify the expected outcomes to be achieved<br>1.2 Document the database problem |
| 2. Gather information | 2.1 Analyse the database in order to identify the business rules, entities and relationships<br>2.2 Identify the existing and proposed business models<br>2.3 Identify any possible Big Data applications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Determine the database functionality | 3.1 Document the existing database and the environment<br>3.2 Confirm database functionality with the client |
| 4. Identify scalability and functionality | 4.1 Identify the reserve, and long-term capacity, of the database<br>4.2 Identify the implications for the system's architecture, data models, data structures, hardware and software<br>4.3 Identify the requirements for scalability<br>4.4 Compare the functionality and scalability features of the database<br>4.5 Determine and document any gap between the features |
| 5. Prepare the database functionality and scalability report | 5.1 Document the functionality and scalability of the database<br>5.2 Submit the report to the client for review |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2, 2.3, 3.2, 4.1-4.5 | • Critically analyses complex documentation from a variety of sources, and consolidates information relating to specific criteria, to determine the requirements |
| Writing | 1.1, 1.2, 3.1, 5.1, 5.2 | • Develops content in a manner that supports the purposes and format of the requirements, using the appropriate structure, layout and specialised technical language |
| Oral Communication | 1.1, 2.2, 3.2, 4.1-4.3, 5.2 | • Establishes and maintains, complex and effective communications in a broad range of contexts, using listening, questioning and summarising techniques to identify needs, and uses specific and clear language when engaging with others |
| Get the work done | 1.1, 1.2, 2.3, 4.1, 4.2, 4.3, 4.4, 4.5 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Gathers and analyses data, and seeks feedback, to |


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| | | |
|---|---|---|
| | | improve plans and processes<br>• Makes high-impact decisions in a complex and diverse environment, using input from a range of sources<br>• Identifies the key factors that impact on decisions and their outcomes, drawing on experience, competing priorities and decision-making strategies, where appropriate<br>• Explores and incubates, new and innovative ideas through unconstrained analysis, and critical thinking, to develop and improve the organisation's goals<br>• Uses digital technologies to manage the business operations, and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDBS603 Determine suitability of database functionality and scalability | ICADBS603B Determine suitability of database functionality and scalability | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDBS603 Determine suitability of database functionality and scalability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- document a clear statement of business expectations and needs, including critical business requirements
- examine the scalability, and functionality, of a database in light of future growth
- determine database functionality and scalability system requirements
- present the findings in a report to the client.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the architecture of the network in which the database resides
- identify and explain, the code of ethics relevant to the computing industry in Australia
- identify the common system hardware related to the client, server and database architecture
- explain the concept of data modelling
- outline the functions and features of databases
- define "Big Data", and explain its implication for database design and functionality.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the database field of work, and include access to:

- equipment and materials


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- industry software packages
- a database management system (DBMS)
- a sample database and data.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDMT401 Create visual design components for digital media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create visual design components for interactive media, using industry-standard authoring tools.

It applies to individuals working in digital media, under the direction of industry standards and supervision, who are responsible for producing visual design components for digital media.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Digital media technologies

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify commonly used visual design components for games and interactive media | 1.1 Obtain the project brief and documents<br>1.2 Identify the features of the visual design components for interactive media<br>1.3 Discuss the design considerations for designing an interactive visual design component |
| 2. Identify the graphics software packages used | 2.1 Identify and review the range of industry-standard graphics software available |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| for visual design | 2.2 Assess the software related to the visual design component requirements<br>2.3 Discuss the technical specifications for rendering and editing processes<br>2.4 Select the graphics software package |
| 3. Use graphics software | 3.1 Run the graphics software and become familiar with the interface<br>3.2 Create new files and organise a file structure<br>3.3 Learn the required tools and features used to create visual design components |
| 4. Create the visual design components for an interactive media | 4.1 Design the visual components of a basic graphical user interface (GUI) for interactive media<br>4.2 Consider the interactive elements of GUI<br>4.3 Document the design<br>4.4 Use graphics software to create visual design components to be used for GUI |
| 5. Evaluate the implementation | 5.1 Demonstrate the implementation to relevant personnel<br>5.2 Evaluate the usability of design components<br>5.3 Reflect on possible changes to improve the visual design and interactivity of components |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.2, 3.1, 3.3, 4.1, 4.2, 5.2, 5.3 | • Analyses and comprehends documentation, images, briefs, instructions, technical and conceptual information from a range of sources, in order to inform the implementation of visual design components for interactive media |
| Writing | 3.2, 4.3 | • Uses industry specific language to create files and file structures<br>• Records technical information noting output of |


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| | | |
|---|---|---|
| | | investigations and discussions |
| Oral Communication | 1.3, 2.3, 5.1, 5.3 | • Articulates complex designs and graphical requirements to others in collaborative discussions, using listening and questioning techniques to check, evaluate and confirm design requirements |
| Numeracy | 1.2, 2.1, 2.3, 3.1, 3.3, 4.1, 4.2, 5.2 | • Uses both formal and informal, oral and written language to convey knowledge and evaluation of technical design components |
| Interact with others | 1.3, 2.3, 5.1-5.3 | • Selects and uses appropriate conventions and protocols to communicate with co-workers and others in a range of work contexts |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1-3.3, 4.1-4.4, 5.2, 5.3 | • Takes responsibility for planning and organising own workload<br>• Analyses available information to make informed decisions<br>• Reflects on outcomes to identify opportunities for improvement<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDMT401 Create visual design components for digital media | ICADMT401A Create visual design components for digital media | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDMT401 Create visual design components for digital media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate original and innovative approaches to the creative development of a graphical user interface (GUI)
- demonstrate how to maintain the integrity of the design brief
- produce concept art and design specifications for splash screens, start screens, and game field screens consistent with a design brief
- construct technical specifications for the visual design components, and overall usability.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain basic programming techniques
- identify the technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- identify the techniques for applying concept development skills
- identify the techniques for applying concept visualisation skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the digital media field of work, and include access to:

- computer hardware
- software
- file storage


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- the internet for research purposes
- copyright and intellectual property legislation
- workplace health and safety (WHS) legislation
- enterprise policies.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDMT402 Produce interactive animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the, skills and knowledge required to create animation for a range of applications, including web pages, e-learning, simulations and advertisements.

It applies to individuals who possess a sound knowledge of digital media and who may either, provide support within a team, or be independently responsible for the design and development of animations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Digital media technologies

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse project requirements | 1.1 Determine the necessary dynamic functionality of the animation to be included inside a web or other interactive document<br>1.2 Determine the appropriate language to achieve that functionality<br>1.3 Determine and evaluate current requirements for the specified application |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design animations | 2.1 Design animations to enhance the web page, and to meet requirements<br>2.2 Design animations to meet the specifications for sound and interactive functions<br>2.3 Design animations that will add to the overall professionalism, or entertainment value, of an application |
| 3. Produce animations | 3.1 Produce animations for web pages and other media<br>3.2 Research and experiment with a range of animation techniques for enhancing the user experience<br>3.3 Produce web animations for a website that enhance the overall professionalism or entertainment value of the website<br>3.4 Test and debug scripts against the required functionality and repeat until correct |
| 4. Publish animations | 4.1 Publish the animations in an acceptable format<br>4.2 Incorporate the animations into a hypertext markup language (HTML) page<br>4.3 Complete the documentation and submit it to the appropriate person for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 3.2 | • Researches technical and conceptual information from a range of sources to identify, and evaluate, the appropriate design elements, and animation techniques for a specific audience |
| Writing | 2.1-2.3, 3.1-3.4, 4.1-4.3 | • Develops material according to internal standards using the appropriate language, layout and structure for a specific audience, to effectively and creatively convey animations in the appropriate format |
| Oral Communication | 4.3 | • Conveys information clearly and politely, and involves others in collaborative discussions using listening and questioning techniques and |


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|---|---|---|
| | | interpersonal skills |
| Numeracy | 3.4 | • Uses a logical sequence of steps to identify and solve functional problems relating to animation |
| Interact with others | 1.3, 2.1 | • Selects and uses appropriate conventions, and protocols, when communicating with co-workers and others in a range of work contexts |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.4, 4.1-4.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others taking into account capabilities, efficiencies and effectiveness<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response to these, applying problem-solving processes in determining a solution<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDMT402 Produce interactive animation | ICADMT402A Produce interactive animation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDMT402 Produce interactive animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design and create interactive animation, following current industry standards
- design and create interactive animation to enhance the professionalism and the entertainment value of a website.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the internet technology used to inform choice of the scripting type
- describe the principles of analysis and design
- explain programming control structures and object-oriented programming, including:
  - buttons
  - scripting to go to uniform resource locators (URLs)
  - scripting to jump to different parts of the animation
  - scripting using the programming language
- explain web-animation programming concepts, including:
  - acceptable formats for importing assets
  - component libraries
  - cross-browser issues
  - importing and exporting libraries
  - inserting published work to a hypertext markup language (HTML) or to an extensible hypertext markup language (XHTML) page
  - internet animation player statistics


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- masking
- movements and automated movements
- publishing finished work in an acceptable web format
- shape animation and manipulation
- symbols
- text manipulation
- transparencies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the digital media field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- the internet and browser access.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDMT403 Produce and edit digital images

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to produce and edit digital images using a range of digital media technologies.

It applies to individuals who possess sound knowledge of digital media, who may provide support within a team or who may be independently responsible for producing editing, enhancing and manipulating digital images.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Digital media technologies

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assess digital camera qualities | 1.1 Assess camera software compatibility with hardware systems and select appropriate software for the production<br>1.2 Select a pixel resolution on the camera to achieve the required quality and resolution of outcome<br>1.3 Check the storage capacity of the camera to identify the number of images required to be captured<br>1.4 Assess camera features suitable to the quality, and use of, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the digital images required<br>1.5 Handle and store lithium batteries according to work health and safety (WHS) requirements |
| 2. Photograph an image | 2.1 Consider camera features, when operating the camera, to ensure that the capture of the image meets production requirements<br>2.2 Load and operate the camera, according to the manufacturer's specifications, and as appropriate to the quality of image to be photographed<br>2.3 Capture digital images using designated file formats |
| 3. Edit a digital image | 3.1 Ensure the correct use of digital image software, including entering and exiting the selected software<br>3.2 Create and store digital image files on a computer according to software procedures<br>3.3 Enhance, crop and alter digital images electronically, to deliver the required image<br>3.4 Check digital images for suitability and compliance with specifications<br>3.5 Save and retrieve digital images using designated file formats<br>3.6 Assess digital images for the delivery mode |
| 4. Incorporate digital images into an interactive sequence | 4.1 Create graphics that incorporate the principles of design using digital image software<br>4.2 Edit, enhance, amend and save digital images using digital image software<br>4.3 Combine digital images into a designated interactive sequence<br>4.4 Integrate the digital images into a designated interactive sequence<br>4.5 Evaluate the outcome for purpose, visual impact and effectiveness |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1-2.3, 3.1-3.6, 4.1, 4.2 | • Interprets and analyses complex information in a range of texts, critically evaluating numerical and textual information to identify compatibility, comparing technical specifications and solutions to new and emerging issues |
| Writing | 2.3, 3.1, 3.2, 3.5, 4.2, 4.5 | • Develops material and resources utilising knowledge of spelling, grammar, appropriate structure and layout, to organise and record information, and evaluates digital image details accurately using specific language and format required for the audience |
| Numeracy | 1.2,1.3, 4.1 | • Uses numeracy to identify the appropriate technical specifications to achieve the desired outcome<br>• Uses a combination of both formal and informal mathematical language involving knowledge of unity, scale, perspective and balance when considering creating graphics |
| Get the work done | 1.1-1.5, 2.1- 2.3, 3.1-3.6, 4.1-4.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response to these, applying problem-solving processes in determining a solution<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDMT403 Produce and edit digital images | ICADMT403A Produce and edit digital images | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDMT403 Produce and edit digital images

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate the operation of a digital camera in order to capture a range of images
- assemble the appropriate tools and procedures required to produce digital images
- demonstrate using digital imaging software to prepare high quality digital images that satisfy a range of customer or business requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the functions and features of a range of delivery platforms
- describe digital photographic techniques
- explain the basic principles of communication through visual design
- describe the implications of technology connectivity
- explain work health and safety (WHS) requirements for the use of cameras, and computers, and the handling and disposing of lithium batteries
- explain procedures for customer and business liaison
- describe the industry standards relevant to digital images.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the digital media field of work, and include access to:

- special purpose tools and equipment


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- materials and industry software packages
- a digital camera
- industry standard graphics software
- copyright information.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDMT501 Incorporate and edit digital video

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to incorporate, and edit, digital video into interactive media presentations.

It applies to individuals who possess a sound knowledge of digital media, are independently responsible for the workflow process and provide support and supervision within a team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Digital media technologies

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify and describe the formats of digital video | 1.1 Determine the distinguishing features and uses of a range of digital video software<br>1.2 Select the current video-editing software appropriate to a range of given outcomes<br>1.3 Determine the limiting factors of computer hardware on video production for a specified job<br>1.4 Determine the differences of image quality and image size, required to deliver the desired outcome |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Analyse the formats employed to create a given computer video sequence for a specified outcome |
| 2. Design the digital video | 2.1 Assess and select appropriate digital video software for the job<br>2.2 Use digital video-editing software to combine video assets<br>2.3 Control variations in video frame rates, as required for the job to be undertaken<br>2.4 Apply time-stamping techniques to the video frames, appropriate for the job to be undertaken<br>2.5 Save the digital video using the appropriate file techniques |
| 3. Edit the digital video | 3.1 Edit single and multiple video tracks to achieve a defined outcome<br>3.2 Join the multiple tracks of a digital video, according to specifications<br>3.3 Employ digital effects to modify and integrate digital video tracks, according to specifications<br>3.4 Apply time encoding to single and multiple-edited digital video tracks, according to specifications<br>3.5 Insert a video track into an interactive media production, according to specifications |
| 4. Present a digital video sequence | 4.1 Test the digital video, and combine with other digital imaging, sound, visual effects and animation to create an interactive media presentation<br>4.2 Save the digital media presentation, including the video, and present to the client or customer |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1, 4.1 | • Integrates a range of texts and organisational information to critically analyse data and evaluate text in order to determine effective engagement |


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| | | |
|---|---|---|
| | | methods, and to monitor the effectiveness of systems for the audience and environment |
| Writing | 2.5, 4.2 | • Develops material and resources utilising knowledge of spelling, grammar, appropriate structure and layout, to organise and record information and feedback in a sequential manner for client and staff engagement, as well as internal reference |
| Oral Communication | 4.2 | • Participates in verbal exchanges of ideas that elicit views, opinions and feedback from others, using appropriate professional techniques and interpersonal skills to effectively, and respectfully, convey information and establish rapport |
| Numeracy | 1.2, 1.4, 3.1-3.5 | • Interprets mathematical information embedded in technical and conceptual information |
| Get the work done | 1.1-1.5, 2.1-2.5, 3.1-3.5, 4.1-4.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences in order to focus on the cause of a problem rather than the symptom<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine and non-routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDMT501 Incorporate and edit digital video | ICADMT501A Incorporate and edit digital video | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDMT501 Incorporate and edit digital video

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce, visualise and interpret creative concepts for digital video
- demonstrate application of the principles of video-editing and production techniques
- design, compile, edit and test the digital interactive media incorporating video.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain contemporary video software
- explain the importance of and actions required to ensure continuity during the editing process
- outline editing conventions
- identify electronic digital language and other terminology
- explain the purpose of using montage as part of a presentation, and the impact of sound and visual effects
- describe principles of video production and formats
- describe the types of cutting
- explain video-editing and post-production techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the digital media field of work, and include access to:


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- special purpose tools, equipment, and materials
- industry software
- the internet
- copyright and intellectual property legislation
- workplace health and safety (WHS) legislation
- enterprise policy.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDRE301 Install digital reception equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install and configure digital reception equipment (DRE) on a customer's premises.

It applies to individuals who install and maintain DRE in home or small business networks, and includes integration of many services such as broadband, digital TV, free to air (FTA), subscription TV (pay TV) and internet protocol TV (IPTV).

No licensing, legislative or certification requirements apply at the time of publication.

## Unit Sector

Telecommunications – Digital Reception Technology

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Notify customer to verify installation order and arrange for site access to comply with security arrangements<br>1.3 Notify supervisor of identified safety hazards at the worksite and complete a job safety analysis (JSA) before commencing work<br>1.4 Confirm location of digital reception equipment and fittings with |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | customer<br>1.5 Identify barriers to installation and develop strategies to overcome them within time and budget restrictions<br>1.6 Select and obtain tools and materials appropriate for the work order |
| 2. Install hardware and equipment | 2.1 Measure signal level at wall plate to ensure received signal strength is adequate<br>2.2 Test customer's existing equipment for operational condition and reception quality<br>2.3 Notify customer of detected problems and record remedial actions if required<br>2.4 Identify interconnection cabling requirements and prepare cables for job requirements<br>2.5 Affix wall plate to agreed position on wall and secure cable according to specification<br>2.6 Connect set top unit to customer equipment and connect cabling between wall plate and set top unit following work health and safety (WHS) and environmental requirements<br>2.7 Power up set top unit and configure it to customer requirements<br>2.8 Activate customer services to complete hardware installation where required |
| 3. Commission and test installation | 3.1 Conduct functional test to assess transmission signal quality<br>3.2 Conduct tests to ensure quality of all services are being delivered against enterprise quality standards<br>3.3 Check all interconnected equipment is functional |
| 4. Finalise installation and handover to customer | 4.1 Restore site to original condition and customer satisfaction<br>4.2 Assess damages that may have occurred during installation and arrange with customer for repair or replacement of damaged components<br>4.3 Remove waste and debris from site and dispose of in a safe and environmentally appropriate manner<br>4.4 Conduct customer training appropriate to equipment, services and vendor literature |
| 5. Complete contract documentation | 5.1 Provide warranties to customer in required format where work and equipment are subject to warranty<br>5.2 Prepare invoices and other financial documentation, where |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | required, and present to customer<br>5.3 Obtain authorised signatures on required documentation to confirm acceptance of completed work |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance*.

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 4.4 | • Interprets textual information from relevant sources to identify key information |
| Writing | 1.3, 2.3, 5.1, 5.2 | • Uses clear, specific and industry-related terminology to complete workplace documentation |
| Oral Communication | 1.2, 1.4, 2.3, 4.4 | • Articulates clearly using appropriate language for environment and uses listening techniques to confirm understanding |
| Numeracy | 1.6, 2.4, 3.1, 5.2 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.1-1.4, 1.6, 2.6, 4.2, 4.3, 5.1-5.3 | • Takes responsibility for following safe, sustainable, appropriate and efficient workplace procedures |
| Interact with others | 2.7, 4.1, 5.3 | • Liaises with customer<br>• Signs-off work when completed to customer's satisfaction |
| Get the work done | 1.5, 2.1-2.5, 2.8, 3.1-3.3 | • Plans, organises and implements tasks efficiently to meet customer requirements<br>• Resolves any problems arising from installation |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDRE301 Install digital reception | ICTDRE3156B Install digital reception | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| equipment | equipment | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDRE301 Install digital reception equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify installation requirements and obtain required approvals
- install equipment applying work health and safety (WHS) requirements and work practices
- configure set equipment to customer requirements
- conduct functionality tests and interpret results
- provide customer training appropriate to equipment
- complete task and handover to customer.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss the range of products used across the industry
- list contemporary equipment and connection methods
- outline customer service principles, particularly dealing with customers face to face
- review enterprise or service specific knowledge of products and services supplied
- discuss work health and safety general principles and enterprise specific job safety analysis (JSA) requirements
- provide an overview of:
  - methods of training customer in product use
  - radio frequency (RF) theory, principles and safety
  - telephony principles to support return path awareness
- identify pre-installation enterprise specific requirements
- state enterprise quality assurance requirements


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- explain return path technology.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Digital Reception Technology industry and include access to:

- site for digital reception equipment installation
- digital reception equipment currently used in industry
- test equipment required for digital reception equipment installation and testing.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDRE302 Locate and rectify digital reception equipment faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to locate and rectify all types of customer digital reception equipment (DRE) faults on a customer premises as part of a home network.

It applies to individuals who install and maintain integrated services in digital receiving equipment or small business networks, and who apply skills and knowledge in this unit to locate and rectify faults of DRE home networks such as broadband, digital TV, free to air (FTA), subscription TV (pay TV) and internet protocol TV (IPTV).

No licensing, legislative or certification requirements apply at the time of publication.

## Unit Sector

Telecommunications – Digital Reception Technology

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for DRE fault identification | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Notify customer to verify fault report and arrange for site access to comply with security arrangements<br>1.3 Notify supervisor of identified safety hazards at worksite and complete a |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | job safety analysis (JSA) before commencing work<br>1.4 Identify existing warranties, service agreements and equipment specifications and documentation covering digital reception equipment<br>1.5 Select and obtain tools and materials appropriate for the work order |
| 2. Assess likely cause and location of fault | 2.1 Verify system details to assist with fault identification<br>2.2 Assess available data and historical trends to determine likelihood of fault being the set top fault or existing customer equipment or cabling fault<br>2.3 Rank likely causes of fault in order of probability ensuring a methodical approach to fault-finding is used<br>2.4 Discuss problem fully with customer and advise of likely charges |
| 3. Perform tests to diagnose fault | 3.1 Conduct visual inspection of system for likely damage following work health and safety (WHS) and environmental requirements<br>3.2 Check connections, plugs, terminations and leads for operation<br>3.3 Measure signal strength at wall plate and beyond to ensure adequate signal level for equipment processing<br>3.4 Conduct functional test of facilities to identify faulty equipment<br>3.5 Progressively isolate fault to remove likely variables from assessment using manufacturer's diagnostic chart<br>3.6 Locate fault with minimal disruption to client activity, in the shortest possible time<br>3.7 Provide customer with regular progress reports |
| 4. Rectify faults | 4.1 Identify faulty cabling parts and equipment and replace or repair according to service agreement<br>4.2 Advise customer of cost of repair if service agreement does not exist<br>4.3 Re-program equipment to customer requirements if required<br>4.4 Complete work in a manner safe to repairer and customer |
| 5. Provide replacement service to customer | 5.1 Provide customer with temporary replacement equipment similar to existing equipment while faulty equipment is being repaired<br>5.2 Program replacement equipment to customer requirements<br>5.3 Test replacement service for functionality before handover – to meet customer satisfaction |
| 6. Clean up worksite and complete | 6.1 Remove waste and debris from site and dispose of in a safe and environmentally appropriate manner<br>6.2 Restore site to original condition and customer satisfaction |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| documentation | 6.3 Prepare invoices and other financial documentation, where required, and present to customer<br>6.4 Obtain authorised signatures on required documentation to confirm acceptance of completed work |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1 | • Interprets textual information from relevant sources to identify key information |
| Writing | 1.3, 3.3, 3.5, 6.3, | • Uses clear, specific and industry-related terminology to complete workplace documentation |
| Oral Communication | 1.2, 2.4, | • Articulates clearly using appropriate language for environment and uses listening techniques to confirm understanding |
| Numeracy | 3.3 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.1, 1.5, 5.1, 6.1-6.4 | • Takes responsibility for following safe, sustainable, appropriate and efficient workplace procedures |
| Interact with others | 4.2, 6.4 | • Deals with customer to provide reports and sign-off on completed work |
| Get the work done | 2.1-2.3, 4.1, 4.3, 4.4, 5.2, 5.3, | • Plans, organises and implements tasks efficiently to meet customer requirements |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDRE302 Locate and rectify digital reception equipment | ICTDRE3157B Locate and rectify digital reception | Updated to meet standards for Training | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| faults | equipment faults | Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDRE302 Locate and rectify digital reception equipment faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine parameters for addressing digital reception faults for a customer and keep customer informed on progress
- apply a methodical approach to fault identification
- use test equipment to identify faults
- interpret test results
- install temporary equipment while repairs are affected
- repair faults, repair cable terminations or replace faulty cable equipment and test to verify correct function
- complete documentation in accordance with enterprise requirements and present to customer for approvals.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss broad knowledge of whole industry product range
- outline customer service principles, particularly dealing with customers face to face
- explain enterprise methods for test analysis and diagnosis
- discuss enterprise or service specific knowledge of products and services supplied
- review work health and safety (WHS) general principles and enterprise specific job safety analysis (JSA) requirements
- give an overview knowledge of:
  - objectives and methods of training for product use for customer education
  - radio frequency (RF) theory, principles and safety


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  - telephony principles to support return path awareness
- identify pre-installation enterprise-specific requirements
- state quality assurance of enterprise requirements
- explain return path technology
- list signal measurement and other enterprise-specific tools
- discuss understanding of contemporary equipment and connection methods.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Digital Reception Technology industry and include access to:

- site for digital reception equipment installation
- digital reception equipment currently used in industry
- test equipment required for digital reception equipment installation and testing.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDRE303 Install a complex digital reception system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design, install, test and commission a complex digital reception system.

It applies to individuals who work on complex radio frequency (RF) and digital distribution systems, such as master antenna television (MATV) and satellite master antenna television (SMATV), in commercial or multi-dwelling unit (MDU) environments.

Work functions in occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – Digital Reception Technology

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan installation of a complex digital reception system | 1.1 Notify customer to arrange access to site and identify customer equipment<br>1.2 Select type of complex digital systems and consequent constraints on installation according to customer specifications<br>1.3 Complete a job safety analysis (JSA) identifying work health and safety (WHS) issues |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Prepare for installation according to relevant legislation, codes, regulations and standards<br>1.5 Verify design requirements are suitable for site application and required system performance |
| 2. Assemble complex digital reception system | 2.1 Select and obtain materials, tools and equipment for installation<br>2.2 Select suitable headend location and cable access<br>2.3 Build headend according to design requirements and manufacturer's specifications<br>2.4 Configure headend and distribution devices to operate according to design and manufacturer's specifications<br>2.5 Run cables along identified routes<br>2.6 Terminate cables according to both design and manufacturer's specifications |
| 3. Test and commission system | 3.1 Conduct performance test operation of headend and distribution devices<br>3.2 Activate system and conduct signal measurement using test equipment<br>3.3 Record and analyse initial test results for quality of service according to design specifications<br>3.4 Rectify identified faults and adjust system to optimal operation<br>3.5 Conduct final signal measurement using test equipment to optimise performance<br>3.6 Update design plans to 'as built' status |
| 4. Complete administrative tasks | 4.1 Record final commissioning test results and settings in line with client requirements<br>4.2 Complete appropriate records and test results, and store according to policy<br>4.3 Complete all financial and other documentation<br>4.4 Hand over to customer and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.4, 3.2, 3.5 | • Interprets textual information from relevant sources to identify relevant and key information |
| Writing | 1.3, 3.3, 3.6, 4.1-4.3 | • Uses clear, specific and industry related terminology to complete workplace documentation |
| Oral Communication | 1.1 | • Articulates clearly using appropriate language for environment and uses listening techniques to confirm understanding |
| Numeracy | 2.1, 3.2 | • Takes readings and measurements and interprets results |
| Navigate the world of work | 1.3, 1.5, | • Takes responsibility for following safe, sustainable, appropriate, and efficient workplace procedures |
| Interact with others | 1.1, 4.4 | • Makes contact with customer<br>• Deals with customer to obtain sign-off on completed work |
| Get the work done | 2.1-2.6, 3.1, 3.4 | • Plans, organises and implements tasks efficiently to meet customer requirements<br>• Identifies and resolves problems |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDRE303 Install a complex digital reception system | ICTDRE3165A Install a complex digital reception system | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDRE303 Install a complex digital reception system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- obtain relevant approvals for access to site and equipment
- plan, assemble and install a complex digital reception system
- conduct functionality tests and interpret results
- examine performance of adjustments (tuning, balancing and replacing components)
- perform handover with customer
- apply related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain procedures and equipment required for measurement of:
  - forward and reflected radio frequency (RF) power
  - feedline insertion loss
  - distance to fault
  - modulation error rate (MER) and bit error rate (BER) for purpose of signal integrity
- identify features of instruments, test equipment and performance requirements
- review legislation, codes of practice and other formal agreements directly impacting operation and testing of radio communications antennas and equipment
- summarise principles of master antenna television (MATV) and satellite master antenna television (SMATV)
- describe RF spectrum and its relationship to digital reception systems


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- discuss RF awareness, electromagnetic radiation (EMR) standards and specific WHS requirements impacting use and testing of radio communications instruments and equipment
- outline typical issues and challenges that occur in telecommunications antenna installations

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Digital Reception Technology industry and include access to:

- site for complex digital reception system installation
- complex digital reception systems currently used in industry
- test equipment required for digital reception system installation and testing.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDRE304 Design communications wiring systems for customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design a smart cable wiring system on a customer premises.

It applies to individuals employed in a technical capacity for the emerging information technologies and applications in domestic and small to medium enterprises.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Pre-requisite Unit

ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule

## Unit Sector

Telecommunications – Digital Reception Technology

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to design a | 1.1 Consult customer and visit worksite to determine immediate and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| wiring system for premises | future functional needs of the cabling system<br>1.2 Identify and document immediate and future location of cabling system customer interface elements, and seek confirmation from appropriate persons<br>1.3 Review technology used to deliver functional needs<br>1.4 Identify specific service provider requirements and requirements of applicable standards, codes and regulations |
| 2. Design a wiring system for premises | 2.1 Follow work health and safety (WHS) procedures when carrying out work<br>2.2 Transfer functional needs of customer to architectural plans<br>2.3 Determine size and location of home distributor, security system, carrier and carriage service facilities, antennas and switch boards<br>2.4 Identify cable pathways and cable support systems<br>2.5 Select appropriate cable types to meet functional needs<br>2.6 Develop cable identification method to aid installation |
| 3. Document cable wiring system design | 3.1 Document customer interface elements room by room<br>3.2 Document requirements for home distributor, security system, carrier and carriage service facilities, antennas and switch boards<br>3.3 Document testing and commissioning requirements<br>3.4 Specify user documentation required after completion of installation<br>3.5 Provide customer quote that includes a bill of materials and a project schedule |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.4, 2.2 | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements<br>• Analyses and consolidates test results and data |


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| | | |
|---|---|---|
| | | from a range of sources, against defined criteria and requirements |
| Writing | 1.1, 1.2, 2.2, 2.6, 3.1-3.4 | • Develops procedural material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations<br>• Produces plans and specifications to industry standards conveying design function and operation |
| Oral Communication | 1.1, 1.2 | • Effectively participates in verbal exchanges using collaborative and inclusive techniques including active listening and questioning and reading of verbal and non-verbal signals to convey and clarify information |
| Numeracy | 2.2, 2.3, 3.5 | • Makes calculations appropriate for measuring and estimating materials and costing<br>• Performs mathematical calculations to establish scale and dimensions of design plans |
| Navigate the world of work | 1.4, 2.1 | • Accepts responsibility and ownership for tasks and makes decisions on completion parameters and need for coordination with others<br>• Explores and implements, where identified, implicit expectations of policies, procedures and regulatory requirements |
| Interact with others | 1.1, 1.2 | • Identifies and takes steps to follow accepted communication practices and protocols<br>• Recognises common cultural and other differences of people in the work context and makes adjustments in addressing differences |
| Get the work done | 2.2-2.6, 3.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency, and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Identifies ideas for applications and considers them in current contexts |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDRE304 Design communications wiring systems for customer premises | ICTDRE3248A Design communications wiring systems for customer premises | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDRE304 Design communications wiring systems for customer premises

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- capture customer functional needs for wiring system
- apply industry standards, regulations and codes of practice when designing a wiring system for a customer
- develop a detailed design in compliance with industry practices, including signal losses and/or expected measurements to be achieved at wall plates
- document the design, including a bill of materials, schedule of work and associated costs and submit to customer.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe cabling standards, regulations and codes applicable to cable design
- determine building regulations that apply to installation of cabling systems
- identify and describe codes of practice and Australian Communications and Media Authority (ACMA) standards for home wiring
- determine carrier network delivery systems used in single dwelling and multi-dwelling units for:
  - fibre
  - fixed wireless
  - satellite
  - twisted copper pair
  - subscription TV
- evaluate cabling requirements of home technology applications taking into account:


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  - the user needs including age and assisted living conditions
  - communications
  - digital home health
  - energy management
  - entertainment
  - intelligent light and power
  - security and safety
- identify and describe testing and commissioning methods and determine performance requirements for home technologies
- describe customer interface elements commonly considered when designing a wiring system
- identify common service providers clients may specify
- consider safety implications of the design for users
- identify design parameters for cable selection and support system of a wiring system
- identify documentation required when submitting a design to a customer.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Digital Reception Technology industry and include access to:

- a contemporary dwelling design
- a specification of a customer's functional requirements
- current standards, codes of practice and regulations.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDRE305 Develop integrated digital reception systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop integrated digital reception system applications, topologies, devices and capabilities, and system programming methods; as well as use diagnostic tools and documentation of developed systems.

It applies to cablers who install emerging digital reception equipment and cabling systems for domestic and small to medium enterprise information technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Digital Reception Technology

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to develop an integrated system | 1.1 Determine types and location of loads and control devices from project specifications and customer requirements<br>1.2 Determine number of control bus networks and current requirements from load calculations for devices on the system<br>1.3 Determine appropriate placement of system devices to optimise bus network power and load parameters, and maintain system stability<br>1.4 Develop an integrated system to comply with regulator, safety and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | manufacturer requirements<br>1.5 Document take-off of the number of devices and accessories required for the system, using manufacturer's title and ID for each<br>1.6 Download required programming and diagnostic tools to a compatible PC and check for correct operation and safety |
| 2. Program integrated system devices | 2.1 Follow work health and safety (WHS) risk control measures and procedures<br>2.2 Apply correct modes of programming to develop an integrated system according to manufacturer's programming software instructions<br>2.3 Follow manufacturer's instructions and recommendations when programming system devices to project requirements<br>2.4 Program parameters for operation of loads to project requirements and within manufacturer's designated range<br>2.5 Save and backup the programmed system database according to manufacturer instructions |
| 3. Load and test integrated system | 3.1 Follow WHS risk control work measures and procedures<br>3.2 Transfer database of integrated system program to network<br>3.3 Test all functions of the integrated system for compliance with project requirements and manufacturer specifications<br>3.4 Use diagnostic tools to locate system faults, defects and anomalies<br>3.5 Correct defects and anomalies to comply with project requirements and manufacturer specifications<br>3.6 Provide copy of documentation of integrated system at handover to customer |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3-1.5, 2.2, 2.3, 3.3 | • Reads and interprets plans, specifications, computer program interface, and other documentation from a variety of sources, and consolidates information to determine requirements |


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| | | |
|---|---|---|
| Writing | 1.5, 2.4, 3.2 | • Develops procedural material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.1 | • Effectively participates in verbal exchanges using collaborative and inclusive techniques including active listening and questioning, and reading of verbal and non-verbal signals to convey and clarify information |
| Numeracy | 1.1-1.3 | • Calculations required for determining design specifications<br>• Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.4, 2.1, 3.1 | • Understands rights and responsibilities in complying with standards and regulatory requirements |
| Get the work done | 1.3, 1.6, 2.2-2.5, 3.2-3.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, search and enter data and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDRE305 Develop integrated digital reception systems | ICTDRE3249A Develop integrated digital reception systems | Updated to meet standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDRE305 Develop integrated digital reception systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- Comply with standards, regulations and work health and safety (WHS) procedures and practices when developing an integrated system
- communicate with customers
- determine the full scope of specifications for an integrated digital reception system
- use calculations to correctly determine the number of network and current requirements
- place system devices appropriately in system scheme
- apply and check appropriate modes of programming and diagnostic tools in the design
- program devices and set load operating parameters according to manufacturer specifications
- use diagnostic tools to locate and correct system defects, faults and anomalies
- document and backup system during appropriate stages of the project.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the applications and advantages of integrated systems
- identify the bus system cable type, polarity, length and acceptable topologies
- describe the process of controlling digital system integration (DSI) and communicating with digital addressable lighting interface (DALI) electronic ballasts
- identify factors that affect control bus stability, including number of units on a network, and current drawn by devices in relation to current output of power supplies
- define the operating parameters of integrated systems and programming to an extent indicated by:
  - importance of project documentation and backup


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    - importance of location of output and input devices and control bus power supplies
- describe lighting dimmer capabilities and selection
- determine the low voltage (LV) supply overcurrent and surge protection
- describe multiple network connectivity
- identify the software used for system and device programming, monitoring and control
- explain system and device programming, encompassing:
    - addressing conventions for networks, devices, applications, output groups, types of control and outputs, which include ‘on’, ‘off’, a specific level, and over a specific time
    - PC programming tools and methods (programming includes configuring network database using addressing tools and objects, function objects, editing, altering and transferring the database to network)
- identify and describe system fault-finding processes
- determine the system components, encompassing:
    - support devices for control bus supply and control
    - support devices for programming, interconnection between networks and integration with third party systems
- describe the types and capabilities of input and output devices.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Digital Reception Technology industry and include access to:

- a typical contemporary dwelling into which a digital system will be developed
- availability of all functional requirements of a modern home
- access to contemporary digital equipment
- access to all current standards, codes and regulations.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDRE401 Integrate customer digital reception equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to integrate emerging audiovisual technology equipment in a customer home network.

It applies to individuals working as installers with a range of customer equipment limited to radio frequency (RF) signal services types requiring current knowledge of equipment capabilities and connection types.

No licensing, legislative or certification requirements apply at the time of publication. However, users should confirm requirements with the relevant federal, state or territory authority.

## Unit Sector

Telecommunications – Digital Reception Technology

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate existing customer equipment | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Notify customer to verify installation order and arrange for site access to comply with security arrangements<br>1.3 Notify supervisor of identified safety hazards at worksite and complete a job safety analysis (JSA) before commencing work |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Use test equipment to verify customer equipment is operational prior to installation<br>1.5 Assess equipment capabilities and connection types against customer requirements for suitability<br>1.6 Assess customer premises against installation plan according to client specifications and by-laws, standards and regulations<br>1.7 Produce an installation diagram using appropriate drawing symbols to indicate connection details of customer system |
| 2. Design and build system | 2.1 Determine connection pathways for optimal performance of system equipment<br>2.2 Confirm compatibility for proposed connections to existing system<br>2.3 Produce a final design with block diagrams and specifications<br>2.4 Select and connect cables to suit connectivity using appropriate materials<br>2.5 Activate equipment to check for network operation |
| 3. Provide enterprise equipment | 3.1 Determine best method of connection to service source according to client specifications<br>3.2 Connect service to system following work health and safety (WHS) and environmental requirements and test to verify connection status<br>3.3 Notify service provider if identified problems cannot be rectified at local level |
| 4. Configure services and optimise customer system | 4.1 Conduct client specific and customer set-up operations<br>4.2 Test performance of enterprise and customer equipment across a range of settings<br>4.3 Record and evaluate test results to satisfy manufacturer's operational margins<br>4.4 Tune customer equipment for optimal performance<br>4.5 Restore site to original condition and customer satisfaction |
| 5. Train customer and complete contract documentation | 5.1 Conduct customer training appropriate to equipment, services and vendor literature<br>5.2 Complete appropriate records and update administration systems according to enterprise policy<br>5.3 Record and store test results in appropriate database, leaving copies on site according to enterprise policy<br>5.4 Provide warranties to customer in required format where work and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | equipment are subject to warranty<br>5.5 Prepare invoices and other financial documentation, where required, and present to customer<br>5.6 Obtain authorised signatures on required documentation to confirm acceptance of completed work |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 5.1, 5.3 | • Interprets textual information from relevant sources to identify key information |
| Writing | 1.7, 2.3, 4.3, 5.3, 5.5 | • Uses clear, specific and industry-related terminology to complete workplace documentation |
| Oral Communication | 1.2, 1.3, 5.1 | • Articulates clearly using appropriate language for environment and uses listening techniques to confirm understanding |
| Numeracy | 4.2, 5.5 | • Takes readings and measurements and interprets results<br>• Uses simple calculations to prepare financial documentation |
| Navigate the world of work | 1.5, 1.6, 2.1, 2.2, 3.1, 3.2, 4.1, 4.4, 4.5, 5.4 | • Takes responsibility for following safe, sustainable, appropriate and efficient workplace procedures |
| Interact with others | 3.3, 5.6 | • Advises service provider of any problems that cannot be resolved locally<br>• Deals with customer to sign-off on completed work |
| Get the work done | 2.4, 2.5 | • Plans, organises and implements tasks to achieve them efficiently to meet customer requirements |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTDRE401 Integrate customer digital reception equipment | ICTDRE4166A Integrate customer digital reception equipment | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDRE401 Integrate customer digital reception equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify modulation and other signal characteristics of a range of contemporary products
- design and build system
- install three types of equipment and services, applying all related work health and safety (WHS) requirements and work practices
- configure services and optimise customer system
- conduct functionality tests and interpret results
- provide customer training appropriate to equipment
- complete task and handover to customer.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify analog and digital connectors
- list contemporary equipment and connection methods
- explain continuity, ingress, egress, signal level and signal quality performance tests
- outline customer service principles, particularly dealing with customers face-to-face
- discuss enterprise or service specific knowledge of products and services supplied
- describe equipment types:
  - amplifiers
  - couplers
  - splitters
  - taps
- discuss modulation techniques


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- define objectives and methods of training for product use for customer education
- discuss WHS general principles and enterprise-specific job safety analysis (JSA) requirements
- assess performance adjustments for tuning, balancing and replacing components
- summarise quality assurance of enterprise requirements
- review test analysis and diagnosis (enterprise diagnosis methods)
- describe video and audio fundamentals

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Digital Reception Technology industry and include access to:

- a site for Digital Reception Technology (DRE) integration
- DRE currently used in industry
- test equipment required for DRE integration.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTDRE402 Integrate data delivery modes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to connect and configure a media centre that integrates signal for distribution.

It applies to individuals working as installers in the digital reception sector integrating services from multiple sources and in multiple formats (radio frequency, digital, data, and voice) for both inward and outbound signals into complex customer systems.

No licensing, legislative or certification requirements apply at the time of publication.

## Unit Sector

Telecommunications – Digital Reception Technology

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate existing customer equipment | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Notify customer to verify installation order and arrange for site access to comply with security arrangements<br>1.3 Notify supervisor of identified safety hazards at worksite and complete job safety analysis (JSA) before commencing work<br>1.4 Use test equipment to verify customer equipment is operational |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | prior to installation<br>1.5 Assess equipment capabilities and connection types against customer requirements for suitability<br>1.6 Assess customer premises against installation plan according to client specifications and by-laws, standards and regulations<br>1.7 Produce an installation diagram using appropriate drawing symbols to indicate connection details of customer system |
| 2. Design and build a multiple service customer system solution | 2.1 Determine connection requirements and pathways for each service to be connected and locate a signal source for each service<br>2.2 Confirm compatibility for proposed pathway options connections to existing system and for optimal performance<br>2.3 Produce preliminary connection plan with block diagrams and specifications to optimise system performance<br>2.4 Evaluate connection plan design to determine any local spectrum management issues arising from multiple services<br>2.5 Produce final connection design with amendments to eliminate local spectrum management contentions, if required<br>2.6 Select and connect cables according to connection plan using appropriate materials<br>2.7 Activate equipment to check network operation<br>2.8 Resolve connection issues that arise during build phase and modify connection plan |
| 3. Provide enterprise equipment with multiple services | 3.1 Determine optimal method of connection to each service source according to client specifications<br>3.2 Connect service to system following work health and safety (WHS) and environmental requirements, and test to identify and rectify connection issues<br>3.3 Notify service provider if problems cannot be rectified locally, and escalate unresolvable connection issues accordingly |
| 4. Configure services and optimise customer system across multiple services | 4.1 Conduct client specific and customer set-up operations for each service<br>4.2 Test performance of enterprise and customer equipment across a range of settings<br>4.3 Test integrated performance of system across multiple services<br>4.4 Record and evaluate test results to satisfy manufacturer's operational margins<br>4.5 Tune customer equipment for optimal integrated performance |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | across multiple services<br>4.6 Restore site to original condition and customer satisfaction |
| 5. Train customer and complete contract documentation | 5.1 Conduct customer training appropriate to equipment, services and vendor literature<br>5.2 Complete appropriate records and update administration systems according to enterprise policy<br>5.3 Record and store test results in appropriate database, leaving copies on site according to enterprise policy<br>5.4 Provide warranties to customer in required format where work and equipment are subject to warranty<br>5.5 Prepare invoices and other financial documentation where required and present to customer<br>5.6 Obtain authorised signatures on required documentation to confirm acceptance of completed work |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4-1.6, 2.4, 3.1, 4.2, 5.1 | • Interprets textual information from appropriate sources to identify relevant and key information |
| Writing | 1.3, 1.7, 2.3, 2.5, 4.4, 5.2, 5.3, 5.5 | • Uses clear, specific and industry-related terminology to complete workplace documentation |
| Oral Communication | 1.2, 1.3, 3.3, 5.1 | • Articulates clearly using appropriate language for environment, and uses listening techniques to confirm understanding |
| Numeracy | 4.3, 5.5 | • Takes readings and measurements and interprets results<br>• Uses simple calculations to prepare financial documentation |
| Navigate the world of work | 1.1, 5.4, | • Takes responsibility for following safe, sustainable, appropriate, and efficient workplace procedures |


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| | | |
|---|---|---|
| Interact with others | 5.6 | • Liaises with customer to sign-off on completed work when completed to customer's requirements |
| Get the work done | 1.3, 2.1, 2.2, 2.6-2.8, 3.2, 3.3, 4.1, 4.3, 4.5, 4.6 | • Plans, organises and implements tasks efficiently to meet customer requirements<br>• Makes decisions on technical requirements<br>• Advises service provider of any problems that cannot be resolved locally |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTDRE402 Integrate data delivery modes | ICTDRE4167A Integrate data delivery modes | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTDRE402 Integrate data delivery modes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify service requirements of a range of contemporary products
- design and build a multiple service customer system solution
- install and integrate at least two services to a customer system comprised of at least three equipment components applying all related work health and safety (WHS) requirements and work practices
- activate and optimise customer equipment using two or more signal sources
- configure services and optimise customer system across multiple services
- conduct functionality tests and interpret results
- provide customer training appropriate to the equipment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list contemporary equipment and connection methods
- outline customer service principles, particularly dealing with customers face to face
- discuss enterprise or service specific knowledge of products and services supplied
- describe equipment types:
  - amplifiers
  - couplers
  - taps
  - splitters
- describe home automation
- identify functions of home theatre system components


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- explain modulation techniques
- discuss WHS general principles and enterprise specific job safety analysis (JSA) requirements
- assess performance adjustments for tuning, balancing and replacing components
- summarise quality assurance of enterprise requirements
- evaluate security systems
- review test analysis and diagnosis (enterprise diagnosis methods)
- identify test equipment and signal measurement and other enterprise-specific tools
- explain principles of video and audio technologies
- explain wireless local area networks (WLANs)
- explain wireless technology.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Digital Reception Technology industry and include access to:

- a site for data delivery modes integration
- equipment currently used in industry
- test equipment required for data delivery integration.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTEDU301 Train customers in new technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to conduct training for customers on telecommunications equipment including convergent technology applications, such as internet protocol television (IPTV), digital television and internet protocol (IP) based customer equipment. It involves assessing the type of training suitable for the product and customer, delivering and checking the training.

It applies to individuals involved with installation of new technology or an upgrade of an existing network or subsystem deploying next generation networks (NGN) for customer premises equipment (CPE) installation, or as dedicated trainers involved in very large installations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Education

## Elements and Performance Criteria

| **Elements** | **Performance Criteria** |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify training required | 1.1 Confirm training to be provided with installation quote<br>1.2 Assess customer’s expertise and actual training details |


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| | |
|---|---|
| | 1.3 Identify and prepare for specialised training needs<br>1.4 Provide quotes for enhanced training and confirm with customer |
| 2. Conduct training | 2.1 Demonstrate and explain relevant equipment, functions and network facilities<br>2.2 Provide customers with hands-on experience operating the equipment<br>2.3 Provide feedback to customers on their operational ability<br>2.4 Provide customers with relevant product literature<br>2.5 Provide enhanced training as agreed |
| 3. Check training | 3.1 Measure customer's skill using the equipment<br>3.2 Review training delivery and note improvements<br>3.3 Update and store records according to organisational requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.4, 3.1, 3.2, 3.3, | • Evaluates and integrates facts and ideas to construct meaning and develop training plans from a range of sources |
| Writing | 1.3, 1.4, 2.1-2.53.2, 3.3 | • Communicates relationships between ideas and information in a style appropriate to audience and purpose |
| Oral Communication | 1.1, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1 | • Demonstrates flexibility in spoken texts by choosing appropriate structures and strategies while instructing, providing constructive feedback or interacting with customers, employer, supervisors, work associates, team members and other contractors |
| Numeracy | 1.1, 1.4, 3.1, | • Identifies and comprehends relevant mathematical information in familiar activities or texts such as costing training |
| Navigate the world of work | 3.3 | • Complies with explicit policies and procedures<br>• Explores and implements, where identified, implicit expectations of policies and procedures |


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| | | |
|---|---|---|
| Interact with others | 1.2, 2.1, 2.2, 2.3, 2.4, 2.5 | • Identifies and takes steps to follow accepted communication practices and protocols<br>• Recognises common cultural and other differences of people in the work context, and makes adjustments in addressing differences<br>• Elicits feedback and provides feedback to others |
| Get the work done | 1.1, 1.3, 3.1, 3.2 | • Plans and implements routine tasks and workload making limited decisions on sequencing, timing and collaboration, seeks assistance in setting priorities<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates effectiveness of outcome |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTEDU301 Train customers in new technology | ICTEDU3053A Train customers in new technology | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTEDU301 Train customers in new technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- review and confirm predetermined training for telecommunications installation
- analyse learner characteristics and actual training needs
- prepare training material, including equipment specifications and guidelines
- conduct customer training on a telecommunications installation including:
  - demonstration
  - hands-on experience
  - feedback on performance
- complete training documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe in detail the content of learning to be provided
- explain common sources of technical training information
- summarise and explain appropriate training techniques for:
  - demonstration
  - individual and group activities
  - instruction
  - questioning.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Education field of work and include access to:

- a range of information and training resources
- customer premises equipment product information
- appropriate training facilities
- relevant industry software packages.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTEDU501 Develop and deliver training associated with new and modified products

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design, conduct and evaluate effective vendor training programs for users and operators of telecommunications equipment. This includes digital or analog communications applications, including telephony, data, video, digital broadcasting, local area networks (LAN), wide area networks (WAN) and multimedia. These may be domestic, commercial or industrial installations.

It applies to individuals involved with customer support activities for the purpose of training technical support or maintenance staff.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Education

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to develop training | 1.1 Confirm training specifications required for a specific product with client<br>1.2 Research available and relevant material and prepare an outline for |


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|---|---|
| program | proposed training<br>1.3 Present and confirm suitability of proposed outline with client<br>1.4 Determine training schedule parameters<br>1.5 Establish criteria for post-training evaluation |
| 2. Design training program and support material | 2.1 Develop training program that follows a logical sequence and builds on existing knowledge of recipients<br>2.2 Create training material that meets up-to-date product and technical information and all related workplace health and safety (WHS) issues and work practices<br>2.3 Develop training delivery style to suit skills of recipient<br>2.4 Review and amend training material prior to product, equipment or facility changes being introduced by the company<br>2.5 Develop training schedule to meet needs and schedules of recipients |
| 3. Deliver training to sales and technical staff | 3.1 Deliver training sessions in a systematic fashion and in a format suitable to client's needs<br>3.2 Monitor student performance against pre-determined criteria<br>3.3 Provide feedback on student performance against pre-determined criteria<br>3.4 Evaluate training session against pre-determined criteria on completion, and identify potential improvements |
| 4. Complete documentation | 4.1 Record session evaluation and feedback from recipients<br>4.2 Present report to client on effectiveness of training sessions and recommendations for improvements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.4, 2.2, 2.4, 3.2-3.4, 4.1 | • Critically organises, evaluates and applies content from a range of structurally complex materials including client briefs, product and technical information and interpretation of feedback from students |
| Writing | 1.2, 1.5, 2.1, 2.2, 2.4, 2.5, | • Generates complex written texts appropriate for a specific audience, |


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| | | |
|---|---|---|
| | 3.4, 4.1 | demonstrating control over a broad range of writing styles and purposes |
| Oral Communication | 1.1-1.3, 2.3, 3.1, 3.3, 4.2, | • Establishes and maintains complex and effective rapport with clients and students, with a depth of understanding that includes multiple and unstated meanings |
| Numeracy | 1.4, 2.5, | • Estimates and plans time requirements for scheduling |
| Navigate the world of work | 2.2 | • Takes full responsibility for following policies, procedures and legislative requirements and identifies organisational implications of new legislation or regulation |
| Interact with others | 1.1, 1.3, 2.3, 3.1-3.3, 4.2 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships<br>• Elicits feedback and provides feedback to others to improve<br>• Recognises diversity in people and manages this diversity to improve workplace relations and practices |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 2.1, 2.2, 2.4, 2.5, 3.2, 3.4 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation, formal and analytical thinking<br>• Uses and investigates new digital technologies and applications to manage and manipulate data and communicate effectively with others, in a secure and |


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| | | |
|---|---|---|
| | | stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTEDU501 Develop and deliver training associated with new and modified products | ICTEDU5025A Develop and deliver training associated with new and modified products | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTEDU501 Develop and deliver training associated with new and modified products

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- develop and deliver training programs for clients to operate new or modified equipment installations
- establish and use criteria to measure and report on training program effectiveness.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe equipment relative to customer requirements, customer telecommunications applications and related equipment
- describe features and applications of telecommunications products relative to customer requirements
- identify and outline common training methodologies for vendor training
- identify, locate and evaluate reference documents relevant to training and after training support.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Education field of work and include access to:

- suitable training resources and facilities
- relevant product information


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- applicable industry software packages.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM301 Apply simple modelling techniques

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop, and refine, 3-D models using simple modelling techniques and appropriate software.

It applies to individuals who support the design, development, and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify work requirements | 1.1 Clarify the requirements for, and purpose of, 3-D digital modelling techniques and refer to the production documentation, WHS requirements and roles of project team members<br>1.2 Clarify work-flow sequences in consultation with the relevant personnel, to ensure that production schedule deadlines are met<br>1.3 Select the software that best suits the type of production and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | delivery platform for which simple 3-D modelling techniques are being applied<br>1.4 Gather and analyse reference materials to help with the application of modelling techniques |
| 2. Apply simple 3-D modelling techniques | 2.1 Apply simple 3-D modelling techniques to create 3-D models<br>2.2 Use software features to block out models in order to determine the correct proportions related to reference materials<br>2.3 Manipulate software features to apply basic lighting and shaders to the models, as required<br>2.4 Ensure that the topology of the models allows for appropriate deformation, as required<br>2.5 Progressively refine, and check, the integrity of the models until they meet design requirements<br>2.6 Submit models to the relevant personnel for comment regarding whether production requirements have been met, and make final adjustments as required<br>2.7 Render and output the models in the required format, and submit to the relevant personnel by agreed deadlines<br>2.8 Make backup copies of files and complete workplace documentation, according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.4, 2.6 | • Interprets documentation, diagrams, designs, objects and images to identify relevant information<br>• Recognises and comprehends signs, symbols, pictures, jargon, abbreviations, computer generated text, numbers and letters, necessary to operate modelling applications software |
| Writing | 2.8 | • Completes the documentation necessary for work tasks and reporting according to requirements |
| Oral | 1.1, 1.2, 1.3, | • Uses industry terminology to clarify requirements |


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| | | |
|---|---|---|
| Communication | 1.4, 2.6 | and obtain information<br>• Listens and responds to instructions, answers to questions and feedback |
| Numeracy | 2.1, 2.2, 2.3, 2.4, 2.5, 2.7 | • Adds, subtracts, multiplies and divides whole numbers, and decimals, when manipulating measurement, scale, ratio and coordinates in the development of models<br>• Structures timeframes to work to deadlines |
| Navigate the world of work | 2.8 | • Complies with explicit organisational procedures |
| Get the work done | 1.1-1.4, 2.1-2.8 | • Makes routine decisions and implements standard procedures for routine tasks<br>• Uses key features of specific digital systems and tools to complete routine tasks<br>• Uses creativity and initiative in design<br>• Understands the importance of secure information in relation to own work, and takes responsibility for data integrity and management |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM301 Apply simple modelling techniques | ICAGAM301A Apply simple modelling techniques | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM301 Apply simple modelling techniques

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- clarify 3-D modelling requirements
- create 3-D digital models that:
  - demonstrate the application of simple 3-D modelling techniques
  - demonstrate the efficient use of geometry and attention to detail
  - meet production documentation requirements
- work collaboratively with the other members of the design and development team
- meet deadlines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify 3-D digital model design techniques
- outline 3-D digital modelling techniques
- outline the stages in the production process, from the initial concept through to the finished product
- discuss the features of a range of delivery platforms
- discuss geometry as it applies to the creation of realistic 3-D digital models
- outline the issues and challenges of creating 3-D digital models
- outline work health and safety (WHS) standards, as they relate to working for periods of time on computers
- outline the roles and responsibilities of project team members in the relevant industry sector


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- discuss the use of scale, form, weight and volume in the design, and development, of 3-D digital models
- discuss basic copyright issues associated with designing and creating 3-D models.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- the production documentation
- reference materials
- computer hardware
- industry software packages
- games engines
- file storage
- enterprise policy about WHS requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM302 Design and apply simple textures to digital art

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to assess, and select, textures and shaders to develop new textures and to apply them to digital art, including 3-D models.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify the design requirements, and plan the approach | 1.1 Interpret the brief to clarify design, texture generation, and the delivery requirements in consultation with the client<br>1.2 Identify the design and technical constraints<br>1.3 Identify the software, media and file formats for digital imagery, texture production and manipulation<br>1.4 Identify the sequence of digital texturing activities in the production pipeline<br>1.5 Identify production workflow requirements, and develop the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | production pipeline to meet client requirements |
| 2. Assess the existing textures and shaders for suitability | 2.1 Establish the underlying surface characteristics of the 3-D model to be textured and shaded<br>2.2 Identify basic shaders and textures with surface characteristics<br>2.3 Identify suitable textures from the available texture libraries<br>2.4 Select shaders and textures for the assignment to model<br>2.5 Confirm that the selections are consistent with the brief and with client requirements |
| 3. Determine shader attributes and assign to a 3-D model | 3.1 Identify and select the attributes required to achieve the desired effects on 3-D models<br>3.2 Determine and confirm the requirements related to lighting and rendering<br>3.3 Use the appropriate methods and techniques to achieve the desired shading outcome |
| 4. Acquire new textures | 4.1 Identify the desired resolution for texture, prior to acquisition<br>4.2 Acquire textures from an online library<br>4.3 Capture real-world textures using digital means<br>4.4 Generate the texture, using art media, or digital paint software, and then save<br>4.5 Ensure that the resolution of the acquired texture meets resolution requirements |
| 5. Generate procedural textures and create a texture map | 5.1 Assess the nature of the surface topology<br>5.2 Identify the suitable types of 3-D projection<br>5.3 Apply geometry where necessary<br>5.4 Use algorithms to simulate natural patterns, where required<br>5.5 Determine the texture-mapping method<br>5.6 Determine the projection-mapping method<br>5.7 Adjust the parameters to achieve desired effects |
| 6. Apply the texture to model | 6.1 Apply the texture to the model<br>6.2 Layer and enhance the textures to achieve the desired effects |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 6.3 Apply lighting to test the reaction of the textures<br>6.4 Apply the textures to lights, in order to achieve specified effects<br>6.5 Adjust the textures to achieve the final effects<br>6.6 Complete test renders, and confirm the outcome with the client |
| 7. Finalise the design | 7.1 Present test renders to the client for approval<br>7.2 Make technical or design adjustments consistent with the feedback and with budgetary constraints<br>7.3 Finalise shading and texturing<br>7.4 Save and archive files in agreed formats and repository |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 3.1, 3.2, 4.1, 4.5, 5.1, 5.2 | • Interprets and comprehends information in diagrams, designs, objects, and images<br>• Recognises and comprehends signs, symbols, pictures, jargon, abbreviations, computer generated text, numbers and letters necessary to operate complex digital art software |
| Oral Communication | 1.1, 1.2, 1.3, 1.4, 1.5, 2.5, 3.2, 6.6, 7.1 | • Uses effective questioning and listening techniques, translating digital art terminology to plain English where necessary, to clarify client requirements and obtain information<br>• Listens and responds to instructions and feedback to ensure that the finished result meets client requirements |
| Numeracy | 3.3, 4.1, 4.5, 5.4, 5.7, 6.2, 6.3, 6.4, 6.5, 6.6, 7.2, 7.3 | • Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading and other variables, in the application of texture to digital imagery<br>• Adds, subtracts, multiplies and divides whole numbers and decimals to ensure that the project |


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| | | |
|---|---|---|
| | | meets budgetary constraints |
| Get the work done | 1.1-1.5, 2.1-2.3, 3.1-3.3, 4.1-4.5, 6.1-6.5, 7.2, 7.3 | • Makes routine decisions and implements standard procedures for routine tasks<br>• Uses creativity and initiative in design<br>• Uses key features of digital systems and tools to complete routine tasks<br>• Understands the importance of secure information in relation to own work, and takes responsibility for data integrity and management |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM302 Design and apply simple textures to digital art | ICAGAM302A Design and apply simple textures to digital art | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM302 Design and apply simple textures to digital art

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- comprehend design requirements
- complete texturing and shading tasks according to brief requirements
- create and apply textures to digital art
- use and optimise software components for best performance
- adhere to system requirements related to file sizes and formats
- store completed file components to software and organisational requirements
- develop textured, shaded and rendered models
- integrate texturing activities into the overall production pipeline.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss camera textures and filters that can be used to achieve shading and texturing effects
- outline the features of software used for:
  - 3-D modelling
  - appropriate file sizes and formats
  - digital image manipulation
  - lighting
  - rendering
  - scanning
  - the scheduling of production activities
  - shading


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  - texturing
- describe how to interpret design, texturing, and shading briefs
- discuss digital image capture, using cameras and scanners
- describe shader attributes and their optimisation
- describe shader and texture mapping, and projection
- discuss texturing and shading requirements for games.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- the appropriate computer hardware, software and peripheral devices
- models and scenes to be shaded and textured
- style shots
- rendering briefs or specifications
- the schedules.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM303 Review and apply the principles of animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to review the traditional animation process and design and produce 3-D animated sequences using modelling and animation software.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare the traditional animation process, and the sequence of its component parts | 1.1 Describe the traditional animation process and its application in the production of quality 3-D animation<br>1.2 Describe the twelve principles of animation and their application in the production of quality 3-D animation<br>1.3 Identify the components that are essential to producing quality 3-D animation |
| 2. Prepare scene layout | 2.1 Describe and demonstrate the scene layout techniques used |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| and storyboarding techniques | in traditional animation<br>2.2 Describe and demonstrate the storyboarding techniques used in traditional animation |
| 3. Nominate appropriate animation keys in a proposed animation sequence | 3.1 Describe the key animation process<br>3.2 Produce sample key drawings<br>3.3 Identify the criteria used for the selection of animation keys<br>3.4 Select the appropriate animation keys in a proposed animation sequence |
| 4. Create a short animation | 4.1 Produce shot animation key drawings<br>4.2 Produce line image recordings of drawings<br>4.3 Create a short, animated sequence |
| 5. Apply traditional animation principles to a 3-D animation | 5.1 Produce a 3-D animated sequence, employing traditional animation principles, using 3-D modelling and animation software<br>5.2 Save and store, or archive, an animated sequence onto appropriate equipment or media |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.3, 5.1 | • Recognises and comprehends a large range of signs, symbols, pictures, jargon, abbreviations, computer generated text, numbers and letters, necessary to operate complex animation software |
| Oral Communication | 1.1, 1.2, 2.1, 2.2, 3.1 | • Uses industry specific terminology to describe animation principles and processes |
| Numeracy | 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 5.1, 5.2 | • Uses positive and negative whole numbers, decimals, degrees and percentages when setting measurement, scale, coordinates, colour, shading, and other parameters in the development of animations |
| Get the work | 3.2, 3.4, 4.1-4.3, | • Follows clearly defined instructions, monitors own |


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| | | |
|---|---|---|
| done | 5.1, 5.2 | progress and seeks assistance, when necessary<br>• Makes routine decisions and implements standard procedures for routine tasks<br>• Uses creativity and initiative in design<br>• Uses key features of specific digital systems and tools to complete routine tasks<br>• Understands the importance of secure information in relation to own work and takes responsibility for data storage |

# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Twelve principles of animation must include: | • anticipation<br>• appeal<br>• arcs<br>• exaggeration<br>• follow through and overlapping action<br>• secondary action<br>• slow in and slow out<br>• solid drawing<br>• squash and stretch<br>• staging<br>• straight ahead action and pose to pose<br>• timing. |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM303 Review and apply the principles of animation | ICAGAM303A Review and apply the principles of animation | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | intent of the performance criteria. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM303 Review and apply the principles of animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create a short animation using traditional animation processes and a range of 3-D modelling and animation software.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe a production brief
- discuss the use of animation keys
- discuss the application of traditional animation processes to digital animation
- outline the process for:
  - the development and recording of ideas
  - the production of 3-D animations
  - the production of a storyboard
  - the production of scene layout
  - filling media and paper-based assets
- outline the principles of animation
- discuss the scheduling of production components.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to appropriate computer hardware, software and peripheral devices.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM401 Produce an interactive game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to produce an interactive game using an industry standard authoring tool.

It applies to individuals who work in the game development industry and support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the game component assets | 1.1 Obtain the project brief and documents<br>1.2 Identify the technical specifications and game-production assets, required to meet creative and production requirements<br>1.3 Discuss formats of assets, and issues of asset integration, with appropriate personnel<br>1.4 Save all digital assets in the appropriate format for inclusion, and store for retrieval<br>1.5 Determine the sequence for the development of a beta version |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | prototype for testing game play<br>1.6 Create a schedule for production and testing<br>1.7 Determine the strategies for monitoring production progress against the schedule |
| 2. Identify the capability of game-engine software and tools, and a make a selection | 2.1 Identify and review the range of industry standard game-engine software and development tools available<br>2.2 Assess the software and tools related to specified game concepts and play requirements<br>2.3 Discuss considerations for the selection of game-engine software with relevant personnel, to ensure that the selection will meet specified outcomes<br>2.4 Select the game-engine software |
| 3. Use game-engine software | 3.1 Load a game engine, including sound and game play<br>3.2 Create a new file for the specified task, and name appropriately<br>3.3 Display and use the tools and features of the software relevant to the game production process<br>3.4 Create a custom code to achieve a unique function |
| 4. Create a game-play sequence and prototype | 4.1 Import and assemble game-play assets in the appropriate sequence, according to creative and technical requirements<br>4.2 Create and check the game-play elements, according to creative and technical requirements<br>4.3 Test and run the game-play sequence as a presentation, to ensure that the sequence meets creative, production and technical requirements<br>4.4 Export to the game engine and create a prototype<br>4.5 Save the file formats and identify for specified purpose |
| 5. Evaluate the game prototype | 5.1 Demonstrate the initial prototype to relevant personnel<br>5.2 Evaluate against criteria, including the achievement of a creative and user-friendly product<br>5.3 Discuss and agree on required changes<br>5.4 Assist, if required, in tests and user trials<br>5.5 Evaluate feedback from user trials<br>5.6 Confirm the endorsement from the relevant personnel to develop the prototype into a complete product |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 6. Transform prototype into a final proof-of-concept prototype | 6.1 Make necessary changes, as indicated by user trials<br>6.2 Integrate all game elements, as required by specifications<br>6.3 Make final checks to ensure that all sequences conform to the navigation design<br>6.4 Save into specified storage systems |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 2.4, 5.2, 5.5 | • Interprets and comprehends information in diagrams, storyboards, objects and images to identify appropriate software, resources, assets and user requirements<br>• Recognises and comprehends signs, symbols, pictures, jargon, abbreviations, computer generated text, numbers, letters and coding syntax necessary to operate complex game engines |
| Writing | 1.6, 3.2, 3.4, 4.5, 6.1, 6.4 | • Uses clear, concise and accurate spelling, grammar, technical terminology and organisational document structures/layout to develop and communicate schedules, strategies and monitoring processes<br>• Uses coding syntax, gaming engine syntax and organisational, labelling and naming conventions when developing interactive games |
| Oral Communication | 1.1, 1.2, 1.3, 2.1, 2.3, 5.1, 5.2, 5.3, 5.4, 5.6 | • Uses effective listening and open questioning techniques to elicit the view and opinions of others, and to obtain information<br>• Participates in a verbal exchange of ideas and solutions, using detailed and clear language, to clarify and present information and strategies according to requirements and the audience |
| Numeracy | 1.2, 1.3, 1.6, 2.2, 2.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.2, 6.1 | • Uses positive and negative whole numbers, decimals, degrees and percentages when setting measurement, scale, coordinates, colour, shading, timing and other parameters in the development of |


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| | | |
|---|---|---|
| | | interactive games |
| Interact with others | 2.3, 5.3 | • Cooperates with others and contributes to work practices where joint outcomes are required |
| Get the work done | 1.1-1.7, 2.1-2.4, 3.1-3.4, 4.1-4.5, 5.1-5.6, 6.1-6.4 | • Makes decisions and implements procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Uses creativity and initiative in design<br>• Assesses, tests and modifies product to ensure that it meets client and technical requirements<br>• Uses digital systems and tools to complete routine tasks<br>• Understands the importance of secure information in relation to own work and takes responsibility for data integrity, storage and management |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM401 Produce an interactive game | ICAGAM401A Produce an interactive game | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM401 Produce an interactive game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- apply a variety of strategies for game trialling and testing
- create a game using original and innovative approaches
- implement game development and production strategies
- maintain the integrity of the design brief and game design document.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe basic programming techniques
- discuss the capabilities, and constraints, of game engines
- identify current game-play hardware and software products
- outline the technical constraints that hardware and software impose on design and development
- explain risk and critical path management, relevant to interactive game development
- outline the game production, testing and trialling process
- discuss the process of evaluating game prototypes from technical, design and game play perspectives.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- project briefs


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- relevant organisational documentation
- game-production assets
- technical specifications
- industry-standard computer hardware, software, and peripheral devices appropriate for interactive games development.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM402 Identify and apply principles of games design and game playing

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify and apply principles of games design and game playing.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse and document, the methodology relating to various computer game genres | 1.1 Review game-play elements in an example of a chosen, or given, game genre<br>1.2 Identify the objectives of play in an example of a chosen, or given, game genre |
| 2. Interpret consumer demographics for various games products | 2.1 Identify the target markets for various types of games<br>2.2 Interpret the choices and patterns of buyers and players<br>2.3 Review the social, emotional, and cognitive aspects of |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | contemporary interactive game play |
| 3. Review the historical aspects of game-play and game design | 3.1 Review and describe the history of the games industry<br>3.2 Review the game play, and design, for non-computer based games<br>3.3 Review the uses of games in commercial, industrial, education, military training, and therapeutic and assessment contexts |
| 4. Identify industry game-design principles | 4.1 Research and identify current industry game-design principles<br>4.2 Identify the game-design principles for a chosen or given game |
| 5. Outline the development of a computer game | 5.1 Outline the game design and play strategies<br>5.2 Outline the technical limitations, and constraints, of current hardware and software |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1-2.3, 3.1-3.3, 4.1, 4.2, 5.1, 5.2 | • Interprets and comprehends technical documentation, specifications, market information, statistics, diagrams, objects and images to analyse various aspects of game play and game design, and to identify target markets and interpret consumer demographics |
| Writing | 3.1, 5.1, 5.2 | • Uses accurate spelling and grammar, together with game development specific technical terminology, to produce documents as required by the job role |
| Oral Communication | 1.1, 1.2, 2.1, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2, 5.1, 5.2 | • Uses effective listening and open questioning techniques to obtain information about games, game development and the target markets |
| Numeracy | 2.2, 2.3 | • Interprets numerical and statistical information relating to target markets, and the games industry |
| Get the work | 1.1, 1.2, 2.1-2.3, 3.1-3.3, 4.1, 4.2, 5.1, | • Uses a range of digitally based technologies to access, extract and share relevant information |


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| | | |
|---|---|---|
| done | 5.2 | |

## Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM402 Identify and apply principles of games design and game playing | ICAGAM402A Identify and apply principles of games design and game playing | Updated to meet Standards for Training Packages | Equivalent unit |

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM402 Identify and apply principles of games design and game playing

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the methodology used for games genres
- differentiate game genres
- identify the consumer demographic for games products
- differentiate game design and play principles
- prepare an outline of a game design according to industry and organisational requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe 3-D digital model design techniques
- outline procedures and processes for computer game development
- identify current game-play hardware and software products
- outline the technical constraints that hardware and software impose on design and development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- the internet


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- computer hardware and software appropriate for researching games and the games industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM403 Create design documents for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create a game concept, develop and document the game specifications.

It applies to individuals who support the design, development and programming of basic digital games and design, develop and use digital media technologies as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research, create and document the game concept | 1.1 Research, identify and describe the target market for the game<br>1.2 Research, identify and describe the game genre and its working title<br>1.3 Identify a suitable game platform<br>1.4 Identify a suitable game engine<br>1.5 Prepare the initial concept art to establish the look, and feel, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | of the characters, environment and game play |
| 2. Create and document the specifications for game design | 2.1 Develop the storylines and levels<br>2.2 Develop the artwork for the characters and environment<br>2.3 Identify the game-play elements<br>2.4 Develop the graphical user interface (GUI)<br>2.5 Identify suitable sounds and music for the game |
| 3. Create, and document, the technical specifications for the game | 3.1 Determine game mechanics<br>3.2 Finalise the platform, game engine and operating system<br>3.3 Specify the source and purpose of the code to be used, including level-specific code<br>3.4 Determine the game physics and artificial intelligence<br>3.5 Determine the sound engineering requirements<br>3.6 Determine the procedures needed to test the game prototype |
| 4. Collate the game design document | 4.1 Define the proposed game features in comparison to existing games<br>4.2 List the estimated resources required to develop the game<br>4.3 Prepare the estimated schedule for game development<br>4.4 Collate the design information, estimates and proposals into a comprehensive game design document |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.5 | • Interprets and comprehends technical documentation, financial information, and statistical data to investigate the target market and to identify suitable resources |
| Writing | 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1, 4.2, 4.3, 4.4 | • Uses clear, concise language, accurate spelling, technical terminology and appropriate layout when developing the technical and financial aspects of the game design document |


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| | | |
|---|---|---|
| | | • Employs a wide range of descriptive language to create a cohesive and well-structured outline of the game, characters, environment and elements |
| Oral Communication | 1.1, 1.2, 1.3, 1.4 | • Uses effective listening and open questioning techniques to elicit the view and opinions of others, and to obtain information |
| Numeracy | 1.1, 1.3, 1.4, 2.1, 2.3, 2.4, 2.5, 3.4, 3.5, 3.6, 4.1, 4.2, 4.3, 4.4 | • Uses whole numbers, decimals and percentages to outline parameters and attributes in a wide range of technical specifications<br>• Interprets financial and statistical information and adds, subtracts, multiplies and divides whole numbers and decimals when researching the target market and estimating resources and schedules |
| Get the work done | 1.1-1.5, 2.1-2.5, 3.1-3.6, 4.1-4.4 | • Takes responsibility for planning, sequencing and prioritising tasks to achieve outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Uses creativity and initiative in design<br>• Uses specific digital systems, applications and tools to complete routine tasks<br>• Understands the importance of secure information in relation to own work, and takes responsibility for data integrity and management |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM403 Create design documents for interactive games | ICAGAM403A Create design documents for interactive games | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of the performance criteria. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM403 Create design documents for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop concept art for characters, environments, splash screens, start screens and game field screens consistent with an identified game genre and design specifications
- develop technical specifications for game mechanics, artificial intelligence, physics, sound, game play and overall usability
- develop game design documents to required industry standard, consistent with client brief and specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss the process of computer game development
- compare and discuss current game-play hardware and software products
- outline the technical constraints that hardware and software impose on design and development
- outline the techniques for applying concept development skills
- outline the techniques for applying concept visualisation skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- the internet for research purposes
- computer hardware, software and peripheral devices suitable for game development


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- games engines.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM404 Apply artificial intelligence in game development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research, develop and implement artificial intelligence (AI) solutions in games.

It applies to individuals who contribute to the creation of computer-controlled objects in games, and who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Conduct research on AI strategies | 1.1 Describe the terminology involved in AI, as it relates to games and the game industry<br>1.2 Identify and analyse the range of AI path-finding strategies, including the appropriate genre and environments, and how they influence design and development<br>1.3 Discuss AI strategies and ideas, and collaborate as required, with the relevant personnel to ensure the contribution of a range of ideas and creative solutions, and to fulfil the requirements of the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | brief<br>1.4 Organise research and findings for use by relevant personnel throughout the development process, updating as required |
| 2. Design an AI strategy for games | 2.1 Generate a range of possible goals and actions, and other factors in the design of an AI non-player character (NPC)<br>2.2 Select the AI strategies for NPCs for the game design that are technically feasible, respond to the brief, and provide creative solutions to all design issues<br>2.3 Continuously reflect on, and assess, AI strategies for implications regarding the budget, timeline, technical feasibility, and suitability for the brief |
| 3. Implement an AI strategy | 3.1 Implement a path-finding algorithm in a game<br>3.2 Implement an NPC AI strategy in a game |
| 4. Evaluate the game, based on NPC AI | 4.1 Review the game design, and AI strategies, for the fulfilment of the design brief<br>4.2 Discuss and confirm additional requirements, or modifications, to the game design with the relevant personnel, and undertake any necessary amendments |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.2, 2.3 | • Investigates, interprets and comprehends technical documentation, diagrams, icons, symbols, text, numbers and letters when determining AI strategies |
| Writing | 1.1, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2 | • Uses clear, concise language, accurate spelling and technical terminology, to organise research findings and to document progress towards goals<br>• Develops AI solutions using the correct code layout, code, diagrams, icons, symbols, text, numbers and letters |
| Oral Communication | 1.1, 1.2, 1.3, 4.1, 4.2 | • Uses effective listening and open questioning techniques, together with technical terminology, to |


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| | | |
|---|---|---|
| | | elicit the view and opinions of others, and to give and obtain information |
| Numeracy | 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 4.1, 4.2 | • Uses whole numbers and decimals to outline parameters<br>• Interprets budgets, and adds, subtracts, multiplies and divides whole numbers and decimals to ensure that the budget, timelines and other brief requirements are met |
| Get the work done | 1.2-1.4, 2.1-2.3, 3.1, 3.2, 4.1, 4.2 | • Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making and analytical processes for more complex and non-routine situations<br>• Uses creativity and initiative in design<br>• Uses key features of specific digital systems and tools to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM404 Apply artificial intelligence in game development | ICAGAM404A Apply artificial intelligence in game development | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of the performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM404 Apply artificial intelligence in game development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and analyse artificial intelligence (AI) strategies for appropriateness to a game development brief
- design a feasible AI strategy for a game
- implement path finding algorithms and non-player character AI strategies in a game
- review and evaluate an AI strategy for a game.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the implications of basic path-finding algorithms on game development
- list and define the major AI terms used in the game industry
- outline the development process for creating AI strategies for non-player characters (NPCs) in a game
- describe the application of object-oriented programming practices
- describe the overall architecture of a game engine.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- research tools including the internet
- path-finding libraries
- development tools to implement AI strategies


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- game design specifications and documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM405 Write story and content for digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify and develop storylines, write plot synopses and background stories, and to develop story components for interactive digital games.

It applies to individuals who are employed as game concept developers, script writers, storyboard artists, game designers and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify and develop storylines with game potential | 1.1 Identify potential storylines for game development, to current industry standards and regulations<br>1.2 Modify and enhance storylines to suit the game environment<br>1.3 Determine the appropriate game genre |
| 2. Write the plot synopsis and background story | 2.1 Determine character profiles<br>2.2 Develop environment profiles consistent with the storyline |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Develop the background story<br>2.4 Develop the initial plot profile<br>2.5 Develop plot synopsis and options, and link to specific game levels |
| 3. Develop story components | 3.1 Source the initial concept artwork<br>3.2 Develop level specifications and storylines<br>3.3 Initiate the development of storyboards showing plot development, cinematic and level outlines |
| 4. Finalise story components for inclusion in the game design brief | 4.1 Seek feedback on the story and concept<br>4.2 Finalise the story concept, profiles and other specifications for inclusion in the game design brief |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 3.1 | • Identifies and evaluates a variety of texts to aid concept development |
| Writing | 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.2, 3.3, 4.2 | • Uses clear, concise language, accurate spelling, technical terminology, and appropriate layout, when developing the technical aspects and flowcharts for the game storyline<br>• Employs a wide range of descriptive language to create cohesive and well-structured content for the characters, environment and plot |
| Oral Communication | 1.1, 1.3, 3.1, 3.3, 4.1 | • Uses effective listening, open questioning techniques and reflective responses to obtain views, ideas, information and feedback<br>• Presents the concept and storyline clearly, using words and non-verbal features appropriate to the audience |
| Navigate the world of work | 1.1 | • Identifies and complies with industry and regulatory requirements |
| Get the work | 1.1-1.3, 2.1-2.5, | • Makes routine decisions and implements standard procedures for routine tasks, using formal decision |


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| | | |
|---|---|---|
| done | 3.1-3.3, 4.1, 4.2 | making processes for more complex and non-routine situations<br>• Uses creativity and initiative in the story, and the visual design<br>• Uses information and communications technology (ICT) based tools to conduct research, design work processes, and complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM405 Write story and content for digital games | ICAGAM405A Write story and content for digital games | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM405 Write story and content for digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop storylines for games, according to current industry standards
- apply processes and procedures to facilitate quality script writing
- apply the role of narrative in game development
- seek, and professionally respond to, feedback regarding concept and storylines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline budgeting and scheduling considerations for game development
- outline the copyright and intellectual property protection regulations for written narrative and concept graphics
- discuss different story requirements for particular game genres
- discuss the role of story writing in game development, and the quality of the final product
- outline research methods that can be used to stay abreast of the latest changes and narrative development for games
- discuss tools and techniques for developing game narrative.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- a range of current computer games across all platforms and genres
- a range of the latest consoles and hand-held game devices


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- the internet for research purposes
- computer hardware, software and games engines
- file storage
- current copyright and intellectual property legislation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM406 Create visual design components for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create visual design components for games and interactive media using industry standard authoring tools.

It applies to individuals who contribute who support the design, development, and programming of digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the commonly used visual design components for games and interactive media | 1.1 Obtain the project brief and documents<br>1.2 Identify the features of visual design components for games and interactive media<br>1.3 Discuss design considerations for an interactive visual design component with relevant personnel |
| 2. Identify the graphics software packages used for | 2.1 Identify and review the range of industry-standard graphics software available |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| visual design | 2.2 Assess the software related to visual design component requirements<br>2.3 Discuss the technical specifications for rendering and editing processes with relevant personnel<br>2.4 Select the graphics software package |
| 3. Use graphics software | 3.1 Run the graphics software and become familiar with the interface<br>3.2 Create new files and organise a file structure<br>3.3 Learn the tools and features used to create visual design components |
| 4. Create the visual design components for a game and interactive media | 4.1 Design a basic graphical user interface (GUI) for a game and interactive media<br>4.2 Consider the interaction processes of GUI elements<br>4.3 Document the design and programming requirements needed to implement the GUI<br>4.4 Use graphics software to create visual design components to be used for the GUI |
| 5. Evaluate the implementation | 5.1 Demonstrate the component to relevant personnel<br>5.2 Evaluate the usability of the design components<br>5.3 Reflect on possible changes to improve the visual design and interactivity of the components |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.1, 3.3 | • Identifies, investigates and applies information from a variety of texts containing highly technical language, to expand own knowledge of chosen graphics software programs |
| Reading | 1.1, 1.2, 2.1, 3.1 | • Identifies and interprets a range of documents containing complex terminology, and applies the information in selecting software and designing the |


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| | | |
|---|---|---|
| | | GUI<br>• Interprets and comprehends diagrams, icons, symbols, text, numbers and letters necessary to design a GUI |
| Writing | 4.1, 4.3, 4.4 | • Uses correct spelling and grammar, plain English, specific terminology and the appropriate document layout, when documenting GUI design for developers<br>• Uses a vocabulary level suited to the intended audience and game in GUI design |
| Oral Communication | 1.1, 1.3, 2.1, 2.3 | • Participates in verbal exchanges of ideas and solutions, using games terminology and effective listening and questioning techniques to clarify information<br>• Presents the design using games specific terminology and non-verbal features appropriate to the audience |
| Numeracy | 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.3, 4.1, 4.2, 4.3, 4.4, 5.2, 5.3 | • Uses whole numbers, decimals and percentages relevant to measurement, font size, scale, ratio, coordinates, colour, shading and other attributes/variables in the development design specifications, and GUI components |
| Interact with others | 5.1 | • Cooperates with others as part of routine activities relevant to gaming design concepts |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1-3.3, 4.1-4.4, 5.1-5.3 | • Makes decisions, and implements procedures, for both routine and non-routine tasks using formal decision-making processes<br>• Plans, organises and completes work according to defined requirements and schedules, taking responsibility for decisions and sequencing tasks to achieve efficient outcomes<br>• Uses a high level of creativity, innovation and initiative in interactive game design<br>• Uses digital systems and tools to complete tasks<br>• Understands the importance of secure information in relation to own work, and takes responsibility for data structure, format and management |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM406 Create visual design components for | ICAGAM406A Create visual design components for | Updated to meet Standards for Training Packages. | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| interactive games | interactive games | Minor edits to clarify intent of the performance criteria. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM406 Create visual design components for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate original approaches to the creative development of a graphical user interface (GUI)
- implement game development and production strategies
- maintain the integrity of the design brief
- develop concept art and design specifications for splash screens, start screens and game field screens, consistent with a design brief
- develop technical specifications for visual design components and overall usability
- implement and evaluate a working GUI with basic functionalities.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of GUI design and related programming techniques
- list the human resources required in the process of creating visual design components
- list technology requirements and outline technical constraints that they impose on design and development
- discuss techniques for applying concept development skills
- discuss techniques for applying concept visualisation skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:


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- a design brief
- computer hardware, software, and peripheral devices suitable for games development
- games engines
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM407 Write scripts for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop, write and test scripts and related content for interactive games.

It applies to individuals who contribute and support the design, development, and programming of digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify story components | 1.1 Identify creative concepts for the script<br>1.2 Identify game genres and story components for script development |
| 2. Develop script components | 2.1 Develop a script structure consistent with the genre and the game design brief<br>2.2 Develop script components for the main plot, background stories, and level or mission stories consistent with the genre and game design brief |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Write a draft script | 3.1 Write a script synopsis<br>3.2 Write a draft script for the main characters and their interactions using the structure and components previously determined, according to the brief<br>3.3 Write a draft script for background stories and level/mission stories using the previously determined structure and components, according to the brief<br>3.4 Develop character and narrator dialogue<br>3.5 Initiate storyboards for draft scripts in the required format |
| 4. Review the script based on feedback | 4.1 Present the synopsis and storyboards to the client and the relevant personnel for feedback<br>4.2 Collate, and respond to, comments and feedback<br>4.3 Revise scripts and storyboards consistent with feedback<br>4.4 Undertake focus testing with the intended audience |
| 5. Write the final script | 5.1 Collate, and respond to, comments and feedback from focus testing<br>5.2 Rewrite the script synopsis where required<br>5.3 Rewrite the script or dialogue where required<br>5.4 Initiate revised storyboards where required<br>5.5 Present the final script in agreed format to the client and colleagues |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 4.2, 4.4, 5.1 | • Interprets and comprehends a range organisational and client documentation, to identify the aim of the proposed games<br>• Reviews feedback containing a wide range of vocabulary and terminology, ranging from simple to highly technical, depending on the source of the feedback |


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| | | |
|---|---|---|
| Writing | 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 4.3, 4.4, 5.2, 5.3, 5.4 | • Uses correct spelling and grammar, together with descriptive language, to create a cohesive and well-structured script for the game, plot, characters, environment and elements<br>• Develops focus testing documentation using plain English and non-leading questioning techniques |
| Oral Communication | 1.1, 1.2, 4.2, 4.3, 5.1, 5.4 | • Participates in a verbal exchange of ideas and uses detailed and clear language, effective listening skills and open questioning techniques to elicit and clarify information and feedback<br>• Presents the script using persuasive presentation techniques, plain English (translating games specific terminology where necessary) |
| Interact with others | 4.1, 4.4, 5.5 | • Cooperates with others as part of routine activities through the explanation and testing of gaming scripts |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 3.1-3.5, 4.1-4.4, 5.1-5.5 | • Makes decisions and implements procedures for routine and non-routine tasks, using formal decision-making processes<br>• Plans, organises and completes work according to defined requirements and schedules<br>• Uses a high level of creativity and initiative in writing scripts<br>• Uses information and communications technology (ICT) based tools to write, source and analyse information<br>• Understands the importance of secure information in relation to own work, and takes responsibility for data management |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM407 Write scripts for interactive games | ICAGAM407A Write scripts for interactive games | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM407 Write scripts for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the key components of the story
- develop the script structure and components
- write scripts consistent with the game design brief and client requirements
- communicate and liaise with the relevant personnel to review scripts
- prepare a final script and present to the client.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss budgeting and scheduling considerations for game development
- discuss the components that drive script narrative and engage the target audience
- describe the contribution of script writing to narrative development and engaging game play
- outline focus testing processes and procedures
- discuss game genres and narrative structures
- list industry formats for game scripts
- outline research methods for:
  - keeping abreast of competitors' work in developing stories and scripts for games
  - obtaining factual information as a basis for character, location and narrative development
  - locating the owners of copyright and intellectual property used in the development of games
  - describing script structures and character profiling for interactive games


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- discussing scriptwriting techniques and the requirements for interactive games
- identifying procedures for seeking permission from copyright owners for the use of protected elements in scripts
- describing different storyboarding techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- reference materials for scriptwriting
- the internet for research purposes
- a range of state-of-the-art computer games, across all platforms and genres
- a range of games consoles and hand-held game devices, computer hardware, software, and peripheral devices
- games engines.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM408 Use 3-D animation interface and toolsets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to investigate, customise, and use 3-D animation software interfaces and toolsets.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Locate and identify the 3-D application navigation controls | 1.1 Using chosen 3-D modelling and animation software, identify a range of 3-D navigation types, including panning, zooming and rotating around the viewport<br>1.2 Identify the methods of use for navigation, keyboard hotkeys and input procedures to improve user performance |
| 2. Locate and identify the 3-D animation toolsets | 2.1 Identify the common toolsets of 3-D animation software<br>2.2 Identify and analyse the 3-D application menus, and specific category types |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Use common 3-D application transformation types<br>2.4 Select and use, common 3-D application-specific toolset types |
| 3. Select and clarify appropriate menu categories for requirements | 3.1 Associate the menu categories as required for specific tasks<br>3.2 Consult with the relevant personnel, and use application hotkeys for superior application interaction |
| 4. Initiate and use application-support materials | 4.1 Identify and research the range of reference material available for use in creating 3-D animation and digital effects<br>4.2 Present the reference material for use in the 3-D animation process<br>4.3 Identify the native application support procedures<br>4.4 Access support documents and help files, through hotkey and application menus<br>4.5 In consultation with the relevant personnel, use support material as required |
| 5. Identify and plan 3-D application import and export procedures | 5.1 Discuss with relevant personnel application file-management procedure types, including opening, importing, saving and exporting<br>5.2 Discuss, and use, application project configuration procedures with the relevant personnel<br>5.3 Prepare and create projects as required |
| 6. Identify and use application feedback | 6.1 Discuss user application feedback with the relevant personnel<br>6.2 Use application feedback to troubleshoot error scenarios, as required<br>6.3 Use feedback with inbuilt support documentation, as required |
| 7. Customise application interface | 7.1 Identify variation of user interface windows and panels configurations<br>7.2 Use the custom interface for specific requirements based on toolset procedural needs |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 3.1, 4.1, 4.3, 4.4, 4.5, 6.1, 7.1 | • Identifies and interprets information from texts containing complex terminology, acronyms and jargon<br>• Interprets and comprehends computer generated text, diagrams, icons, symbols, numbers and letters necessary to use 3-D animation software |
| Oral Communication | 1.1, 1.2, 2.1, 2.2, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 7.1 | • Employ effective listening and questioning techniques to obtain information<br>• Participates in a verbal exchange of ideas and solutions using plain English and games terminology, summarising the main points to ensure understanding |
| Numeracy | 2.3, 2.4, 5.1, 5.2, 5.3 | • Uses whole numbers, decimals and percentages relevant to measurement, font size, scale, ratio, coordinates, colour, shading and other attributes/variables in the development of animations |
| Interact with others | 3.2, 4.5 | • Cooperates and collaborates with others as part of routine activities, and to elicit support |
| Get the work done | 1.1, 1.2, 2.1-2.4, 3.1, 3.2, 4.1-4.5, 5.1-5.3, 6.1-6.3, 7.1, 7.2 | • Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Uses digital systems and tools to complete routine tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM408 Use 3-D animation interface and toolsets | ICAGAM408A Use 3-D animation interface and toolsets | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM408 Use 3-D animation interface and toolsets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- interact and navigate with 3-D application interface and toolsets
- manage files to protocols
- execute and use 3-D application native support
- use 3-D application user feedback
- configure custom panels and window configurations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline 3-D animation production protocols
- describe the contents and application of a production brief
- outline the process for the development and recording of ideas
- outline the protocols for filing media assets
- outline fundamental research principles
- discuss the principles of design and colour for use in 3-D animation and digital effects environments
- outline the procedures for producing a storyboard and script
- discuss the technical constraints that hardware and software impose on graphics requirements and creative visual design.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- reference materials
- appropriate computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM409 Create 3-D characters for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and build 3-D characters for commercial games.

It applies to individuals who support the design, development and implementation of the 3D characters of digital games, as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research and analyse the characters | 1.1 Determine and agree on the style of characters, according to the client requirements<br>1.2 Determine and agree on, the character type and profile<br>1.3 Determine and agree on, the character role and name<br>1.4 Determine and agree on, the character animations required for implementation into game systems<br>1.5 Compare the animations with the analysis criteria |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design the characters | 2.1 Develop a concept illustration for the character<br>2.2 Conduct focus testing of the concept illustration with the client, and with representatives of the target market audience<br>2.3 Develop character schematics based on feedback, and submit to the client for approval |
| 3. Develop the character models | 3.1 Construct a 3-D character model on a turntable, based on the character schematics<br>3.2 Construct 3-D costumes, tools and accessories for the character model<br>3.3 Shade, texture and light, the completed character model<br>3.4 Implement joints, vertex weighting and character rig, to a 3-D character model<br>3.5 Develop animation blocking and in-betweens, in consultation with animation personnel for their approval<br>3.6 Compare the 3-D models and animations to the original concept illustration, for verification of quality and conformity to the brief<br>3.7 Submit to the client for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.5, 2.3 | • Identifies and interprets design briefs, and related technical documentation, containing complex animation-specific terminology and acronyms<br>• Interprets and comprehends computer-generated text, diagrams, icons, symbols, numbers and letters necessary to use 3-D animation software |
| Writing | 2.2 | • Uses plain English and appropriate questioning strategies, avoiding loaded or leading questions, when developing documentation for focus testing |
| Oral Communication | 1.1, 1.2, 2.2, 2.3, 3.6 | • Employs effective listening and questioning techniques to obtain information |


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| | | |
|---|---|---|
| | | • Participates in a verbal exchange of ideas and solutions, using plain English and 3-D animation terminology, summarising the main points to ensure understanding |
| Numeracy | 1.4, 2.1, 2.3, 3.1, 3.2, 3.3, 3.4, 3.5 | • Uses whole numbers, decimals and percentages relevant to measurement, font size, scale, ratio, coordinates, colour, shading and other attributes/variables, in the development of the animations |
| Interact with others | 1.1-1.3, 2.2 | • Cooperates with others as part of familiar routine activities, to confirm agreement |
| Get the work done | 1.1-1.5, 2.1-2.3, 3.1-3.7 | • Makes decisions and implements procedures for both routine and non-routine tasks, using formal decision-making processes<br>• Plans, organises and completes work, according to the defined requirements and schedules<br>• Uses creativity and initiative in character design<br>• Uses digital systems and tools proficiently to complete required tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM409 Create 3-D characters for interactive games | ICAGAM409A Create 3-D characters for interactive games | Updated to meet Standards for Training Packages.<br><br>Edited Performance Criteria for clarity. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM409 Create 3-D characters for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop and realise the characters for games, using 2-D and 3-D software applications
- develop character designs that comply with the games design brief, and the client requirements
- develop the character designs
- test responses to the character designs for aesthetic suitability with the intended audience, and act on the feedback.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the features of 3-D software packages used to create 3-D character models for games
- interpret the game design briefs
- discuss the methods of 3-D character modelling, within the technical parameters and constraints of game development
- discuss the technical limitations for the creation of 3-D character models for games.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines


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- file storage
- character reference materials, such as models, illustrations, art and design books, and character photographs
- a range of state-of-the-art games, across all platforms and genres
- a range of the latest consoles and hand-held game devices
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM410 Develop 3-D components for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, and to create, 3-D components within a games environment.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm 3-D component requirements within the game context | 1.1 Identify the definition and purpose of 3-D components, with examples<br>1.2 Identify the context of 3-D component design within the game design document<br>1.3 Create a list of required 3-D components |
| 2. Identify 3-D component integration methods within game | 2.1 Discuss the 3-D component format, file extensions and the ramifications of choice with the relevant personnel<br>2.2 Establish the methods of 3-D component loading and usage |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| architecture | |
| 3. Establish the content creation pipeline | 3.1 Finalise the required 3-D component list<br>3.2 Discuss the hardware and software required for the creation of 3-D components and assets<br>3.3 Discuss the methods of naming 3-D components and assets, and file archiving<br>3.4 Establish the deadlines for 3-D component creation |
| 4. Integrate 3-D components for testing and analysis | 4.1 Identify the evaluation methods for quality assurance<br>4.2 Ensure that the produced 3-D components meet the established quality requirements<br>4.3 Make changes to 3-D components, as required, by testing and evaluation<br>4.4 Submit the finalised assets with the archiving format outlined in the assignment brief |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 4.1, 4.3 | • Identifies and interprets briefs and related technical documentation containing complex task-specific terminology<br>• Interprets and comprehends computer generated text, diagrams, icons, symbols, numbers and letters necessary to use 3-D application software |
| Writing | 1.1, 1.3, 3.1, 3.4 | • Uses correct spelling, grammar, technical terminology and organisational templates/document structures to develop lists and schedules |
| Oral Communication | 1.1, 1.2, 2.1, 2.2, 3.2, 3.3, 3.4, 4.1, 4.4 | • Employs effective listening and open questioning techniques to obtain information<br>• Participates in a verbal exchange of ideas and solutions using plain English and games development terminology, summarising the main points to ensure understanding |


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| | | |
|---|---|---|
| Numeracy | 1.2, 2.1, 2.2, 3.4, 4.2, 4.3 | • Uses whole numbers, decimals and percentages relevant to file size, software and hardware specifications, measurement, font size, scale, ratio, coordinates, colour, shading and other attributes/variables in the development of 3-D components and timelines<br>• Defines timeframes in accordance with schedule requirements |
| Get the work done | | • Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Uses a systematic process to evaluate work and to implement improvements<br>• Uses key features of specific digital systems and tools, effectively to complete routine tasks<br>• Understands the importance of file format and takes responsibility for data integrity and management |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM410 Develop 3-D components for interactive games | ICAGAM410A Develop 3-D components for interactive games | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of the performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM410 Develop 3-D components for interactive games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and confirm 3-D component designs
- identify component integration
- establish the component development pipeline
- generate 3-D components for games
- test and analyse component integration
- submit final product.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss and explain current game hardware and software products
- discuss and explain game-engine architecture and methods used in component importing
- outline processes and techniques related to:
  - the creation of 3-D objects within industry-standard modelling software
  - the use of industry formats for the development of 3-D models and objects.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines


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- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM412 Design interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and implement technologies relating to human-computer interaction.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define human-computer hardware interface devices | 1.1 Identify standard human-computer interaction devices<br>1.2 Identify game-specific human-computer interaction devices and the common controls used in their implementation |
| 2. Research common event-handling systems | 2.1 Identify and review industry-standard event-handling systems used in application libraries<br>2.2 Create an application, accessing and using technologies, and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | showcasing captured events from hardware devices<br>2.3 Consider the human-computer interaction device selection |
| 3. Research commonly used graphical user interface (GUI) widget sets | 3.1 Identify common widgets and their usage within an application environment<br>3.2 Identify and review industry-standard graphical user interface libraries, and their relevancy within game engine software<br>3.3 Consider the selection of widgets within a game heads-up display (HUD)<br>3.4 Use human-computer interface devices and event-handling call-backs in the creation of an application, showcasing the captured events with GUI widgets |
| 4. Design a simple media software device | 4.1 Design a prototype for the development of a custom user interface widget to be used within a game heads up display environment<br>4.2 Select GUI software for implementation and discuss the ramifications of the selection |
| 5. Build and implement a simple media software device | 5.1 Integrate all custom widget elements, as required by the prototype specifications<br>5.2 Make final checks to ensure that the functionality conforms to the original design<br>5.3 Save into specified storage systems |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 3.1, 3.2 | • Identifies and evaluates online documentation containing complex technical terminology to conduct research into hardware, existing interactive media and industry standards<br>• Interprets and comprehends computer-generated text, code, diagrams, icons, symbols, numbers and letters necessary to use the relevant software |


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| | | |
|---|---|---|
| Writing | 2.2, 3.4, 5.1 | • Recognises and uses technical terminology, application terminology, code, syntax and labelling when conducting research and developing interactive media |
| Oral Communication | 1.1, 1.2, 2.3, 3.1, 3.2, 3.3, 4.1 | • Employs effective listening and open questioning techniques to obtain information<br>• Participates in verbal exchanges of ideas and solutions using plain English and interactive media terminology, summarising the main points to ensure understanding |
| Numeracy | 2.2, 2.3, 3.3, 3.4, 4.1, 4.2, 5.1, 5.2, 5.3 | • Uses whole numbers, decimals and percentages relevant to file size, software and hardware specifications, measurement, font size, scale, ratio, colour, shading and other attributes/variables in the development of interactive media |
| Get the work done | All | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options, and seeking input and advice from others before taking action, when necessary<br>• Uses key features of specific digital systems and tools, effectively to complete required tasks<br>• Understands the importance of file integrity and management |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM412 Design interactive media | ICAGAM412A Design interactive media | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of the performance criteria. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM412 Design interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- define hardware and software requirements for the human-computer interaction environment
- research event handling systems and graphic user interfaces (GUI)
- design a simple application, using correct methods of hardware event handling, within the context of a video game environment
- produce a custom control for use within a large project
- present a completed project on time.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain programming techniques appropriate to interactive media
- define specific terminology used by computer game developers
- describe common human-computer interaction devices and their application
- describe common widgets and their usage
- define a ‘heads-up display’
- outline the technical constraints that hardware and software impose on design and development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:


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- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM413 Design and create 3-D digital models

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and create 3-D models.

It applies to individuals who design, develop and use digital media technologies, working independently or as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify work requirements | 1.1 Clarify the requirements and purpose for the design, and creation, of 3-D digital models, with reference to the production documentation<br>1.2 Clarify organisational guidelines and work flow sequences to ensure that the production schedule deadlines are met with the relevant personnel<br>1.3 Select the software that best suits the type of production and delivery platform for which 3-D digital models are being designed and created |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Gather and analyse reference materials to help with the design and visualisation of 3-D models |
| 2. Design 3-D digital models | 2.1 Design, and sketch, the concept drafts of a 3-D model<br>2.2 Create the concept art for 3-D models<br>2.3 Create the prototypes of 3-D models |
| 3. Create 3-D digital models | 3.1 Use software features to block out models, to determine the correct proportions related to reference materials<br>3.2 Manipulate software features to apply basic lighting and shaders, as required<br>3.3 Ensure that models' topology allows appropriate deformation, as required<br>3.4 Progressively refine and check the integrity of models until they meet the design requirements<br>3.5 Submit the models to the relevant personnel for comment regarding whether the production requirements have been met, and make final adjustments as required<br>3.6 Render and output the models in the required format, and submit them to the relevant personnel by the agreed deadlines<br>3.7 Make backup copies of the files and complete the workplace documentation, according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 3.1 | • Identifies and evaluates documentation containing complex technical terminology to interpret the design brief and to conduct research into the design and visualisation of 3-D models<br>• Interprets and comprehends computer-generated text, diagrams, icons, symbols, numbers, and letters necessary to use the relevant software |
| Oral Communication | 1.1, 1.2 | • Employs effective listening and open-questioning techniques to clarify design requirements, project |


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| | | |
|---|---|---|
| | | scheduling and to obtain feedback |
| Numeracy | 1.1, 1.2, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 3.6 | • Uses whole numbers, decimals and percentages relevant to file size, software and hardware specifications, measurement, scale, form, weight, volume, colour, shading, and other attributes/variables in the development of 3-D models |
| Get the work done | All | • Takes responsibility for planning tasks required to achieve required outcomes, negotiating some key aspects with others<br>• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Uses analytical processes to make decisions directly related to tasks<br>• Evaluates outcomes of design solutions to improve future responses<br>• Selects or supports new ideas on the basis of their contribution to the achievement of broader goals<br>• Uses key features of specific digital systems and tools to complete required tasks<br>• Manages and maintains files in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM413 Design and create 3-D digital models | ICAGAM413A Design and create 3-D digital models | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM413 Design and create 3-D digital models

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, create and store 3-D digital models that meet work, design and production requirements
- communicate with personnel to clarify initial requirements, including deadlines, and to receive feedback about models.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the principles of 3-D digital modelling and design
- outline the stages in the production process, from the initial design through to the finished product
- describe the common issues and challenges that arise in the context of designing and creating 3-D digital models
- outline the roles and responsibilities of project team members in the development of digital models
- outline the features of a range of delivery platforms
- discuss geometry as it applies to the design and creation of realistic 3-D digital models
- discuss the use of scale, form, weight and volume in the development of 3-D digital models.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM414 Create audio for digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to produce and manipulate audio assets for computer games, using a variety of tools.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research and document game audio requirements | 1.1 Explore the evolution of audio hardware and audio formats<br>1.2 Provide a historical perspective on how audio has become integrated into computer games<br>1.3 Identify current trends and consider their impact on the future of game audio |
| 2. Research and document the use of | 2.1 Identify the different methods for using audio in computer games |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| audio in computer games | 2.2 Explore the role of music in creating mood and atmosphere<br>2.3 Explain how sound effects and vocals are used within computer games |
| 3. Source existing sound effects, music tracks and voice recordings | 3.1 Find sources of sound effects, music tracks and voice recordings<br>3.2 Create and maintain a small collection of audio assets<br>3.3 Identify the different audio formats<br>3.4 Differentiate between compressed and uncompressed audio formats<br>3.5 Identify the different genres of music<br>3.6 Develop an awareness of audio copyright laws and royalty-free audio |
| 4. Record and manipulate audio for a game | 4.1 Record character voices, music and sound effects<br>4.2 Develop a sound track for a game using audio-editing<br>4.3 Use audio-editing software to rearrange audio samples, and apply audio effects<br>4.4 Select an appropriate sample format and bit rate<br>4.5 Normalise the audio samples to make volume uniform<br>4.6 Trim the audio samples<br>4.7 Apply the audio effects<br>4.8 Export audio to a suitable format |
| 5. Create sound effects or music for a game | 5.1 Identify digital sound waveforms<br>5.2 Apply basic music theory to simple music-creation tool<br>5.3 Determine the suitable musical notation<br>5.4 Identify and use musical creation tools<br>5.5 Compose a simple piece of music for a game<br>5.6 Create various sound effects for a game |
| 6. Research audio-programming libraries | 6.1 Compare and contrast the functional capabilities of audio-programming libraries<br>6.2 Explore the use of channels and mixing |
| 7. Integrate sound, music and vocals into a computer game | 7.1 Play a mixture of cached and streaming audio sources<br>7.2 Integrate the sound effects in response to different events<br>7.3 Incorporate the ambient music into sections of the computer |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | game<br>7.4 Locate and play the positional audio sources |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 2.1, 2.2, 3.1, 3.3, 3.4, 3.5, 3.6, 6.1 | • Identifies and evaluates documentation containing complex technical and audio terminology, to research the current and future use of audio in games, and to identify appropriate hardware, software and assets<br>• Interprets and comprehends computer-generated text, audio tracks, abbreviations, symbols, icons, numbers, and letters necessary to use audio-editing software |
| Writing | 1.1, 1.2, 2.2, 2.3, 6.2 | • Uses correct spelling and grammatical structures and clear language, and technical terminology |
| Oral Communication | 1.1, 1.2, 1.3, 2.1, 2.3, 3.1, 3.3, 3.4, 3.5, 3.6, 6.2 | • Elicits information using effective listening and open-questioning techniques<br>• Speaks clearly and concisely, converting highly technical language and terminology to plain English |
| Numeracy | 3.4, 4.1-4.8, 5.1-5.6, 6.1-6.2 | • Uses whole numbers, decimals and percentages relevant to file size, software and hardware specifications, measurement, pitch, speed, tempo, time, frequency, amplification and other attributes/variables in the development of audio |
| Navigate the world of work | 3.6 | • Takes personal responsibility for adherence to legal/regulatory responsibilities relevant to own work context, in relation to copyright laws |
| Get the work done | 1.1, 2.2, 2.3, 3.1-3.6, 4.2-4.8, 5.1-5.6, 6.2, 7.1-7.4 | • Plans, organises and implements tasks required to achieve required outcomes<br>• Implements actions as per plan, making slight adjustments if necessary<br>• Uses exploration, analytical and lateral thinking to identify new ideas and adapt existing ideas to current context<br>• Uses digital systems and tools to create and save |


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| | | |
|---|---|---|
| | | files in required formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM414 Create audio for digital games | ICAGAM414A Create audio for digital games | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM414 Create audio for digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research game audio requirements
- locate and obtain suitable audio resources
- record and manipulate audio
- generate sound effects
- compose simple music tracks for a game
- use audio programming libraries in a game.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe audio-editing tools
- discuss and explain different audio formats and their application to games
- discuss and explain the capabilities of audio-programming libraries
- explain copyright as it applies to audio recordings
- discuss music-creation tools and their relation to music theory.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- appropriate computer hardware, software and peripheral devices
- digital audio editing software


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- games engines and file storage
- copyright and intellectual property legislation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM415 Develop simple environments for 3-D games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the performance outcomes, skills and knowledge required to research, design, verify, validate, develop, and evolve simple environments for different genres of games.

It applies to individuals working in the game development environment as concept artists, matte painters, game designers, animators and other personnel.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research and analyse brief requirements | 1.1 Interpret the brief and clarify the design requirements, in consultation with the client<br>1.2 Identify the design, technical constraints and innovative features of the environments<br>1.3 Identify the software, media and file formats for digital imagery<br>1.4 Identify the production workflow requirements, and develop |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the production pipeline to meet client requirements |
| 2. Design and visualise the environment | 2.1 Develop the concept illustration for the environment, consistent with the game genre<br>2.2 Conduct focus testing of the concept illustration with the client and the representatives of the target market audience<br>2.3 Submit to the client for approval and feedback<br>2.4 Make adjustments to the concept illustration, based on comment and feedback |
| 3. Verify and validate the environment | 3.1 Create an environment prototype according to the design brief, guidelines, and feedback on the concept illustration<br>3.2 Conduct focus testing and seek recommendations for the further enhancement of the documented environment prototype<br>3.3 Make adjustments to the environment prototype, based on comment and feedback<br>3.4 Submit to the client for approval and feedback |
| 4. Develop and evolve environment | 4.1 Further enhance the environment prototype based on recommendations generated from focus testing<br>4.2 Submit to the client for approval and feedback<br>4.3 Finalise the environment design<br>4.4 Save and archive the files in agreed formats and repository |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.3 | • Identifies and evaluates documentation containing complex technical terminology to interpret the design brief and conduct research into the design of 3-D game environments<br>• Interprets and comprehends computer generated text, diagrams, icons, symbols, numbers and letters necessary to develop environment prototypes |


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| | | |
|---|---|---|
| Writing | 2.2, 3.2 | • Develops focus testing documentation according to organisational and user requirements |
| Oral Communication | 1.1, 1.2, 1.3, 1.4, 2.2, 2.3, 3.2, 3.4, 4.2 | • Participates in verbal exchanges of ideas using detailed and clear language, effective listening skills and open-questioning techniques to elicit and clarify information and feedback<br>• Presents the concept illustration and environment prototype using persuasive presentation techniques, plain English, translating games specific terminology where necessary |
| Numeracy | 1.1, 1.2, 1.3, 1.4, 2.1, 2.4, 3.1, 3.3, 4.1, 4.3 | • Uses whole numbers, decimals and percentages relevant to file size, software and hardware specifications, measurement, scale, form, weight, volume, colour, shading and other attributes/variables in the development of environments for 3-D games |
| Interact with others | 1.1, 2.2, 2.3 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, and taking a leadership role when conducting focus testing |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4 | • Plans a range of routine, and some non-routine, tasks, aiming to achieve required outcomes efficiently and effectively<br>• Implements actions as per the plan, making slight adjustments if necessary, and addressing some unexpected issues when developing and evolving the environment design<br>• Analyses feedback from others to make design decisions<br>• Identifies and adapts ideas being used in similar contexts and understands and explicitly applies some basic principles of analytical and lateral thinking<br>• Understands the key principles and concepts underpinning the functions of digital systems and tools<br>• Manages and maintains the files securely in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM415 Develop simple | ICAGAM415A Develop simple | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| environments for 3-D games | environments for 3-D games | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM415 Develop simple environments for 3-D games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and analyse requirements from the client's brief
- develop environment designs that comply with the games design brief and client requirements
- verify and validate the environment prototype
- test responses to the environment designs with the intended audience
- finalise the environment design.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- determine the budgeting and scheduling considerations for environment creation in games, with consideration given to human resources
- discuss the techniques applied to environment design and realisation, including how the genre of the game influences environment requirements
- discuss how to interpret environment design briefs
- describe the role and position of interactive environments in commercial game development, game duration, and quality
- outline the processes and procedures needed to facilitate quality, and innovation in the design of 3-D environments
- identify the prototyping tools and techniques for commercial environment development in games
- outline the research methods used to stay abreast of the latest developments in game environment design.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- appropriate computer hardware and software
- input and output devices
- game design documents or specifications
- style shots.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM416 Prepare and complete image rendering processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to select suitable rendering applications and prepare and optimise rendering for 3-D modelling, animation and game development.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the rendering requirements | 1.1 Identify the equipment and media required for the project<br>1.2 Identify the features of the rendering software packages used in the film and games industries<br>1.3 Analyse the design brief, or other reference sources, to plan and determine the rendering requirements |
| 2. Select a suitable rendering application to | 2.1 Select the rendering software with the capability to achieve the desired effects within the timeframe and budget |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| achieve desired appearance | 2.2 Confirm that the selection is according to the brief, system limitations and requirements |
| 3. Prepare rendering application for desired outcome | 3.1 Select and apply the appropriate image resolutions, image aspect ratio, and pixel ratio<br>3.2 Adjust the renderer attributes to obtain desired anti-aliasing<br>3.3 Adjust the renderer attributes to obtain other desired visual effects |
| 4. Check the render integrity and quality | 4.1 Refine the render integrity<br>4.2 Re-link any missing images and textures<br>4.3 Test the render times for optimising process<br>4.4 Test the alpha channels and opacity matts<br>4.5 Test the render layers and passes |
| 5. Optimise the images for render processes | 5.1 Complete pre-rendering optimisation tasks<br>5.2 Adjust and refine renderer attributes to optimise render times<br>5.3 Select the appropriate file format for output, according to the brief<br>5.4 Select the appropriate filenames and output destinations |
| 6. Render the images and save files appropriately | 6.1 Undertake the final rendering processes<br>6.2 Store or archive the files<br>6.3 Review the completed render to ensure compliance with the system and the brief<br>6.4 Confirm the rendering with the relevant personnel |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.1, 2.2, 6.3 | • Interprets a design brief containing complex games-design terminology<br>• Interprets and comprehends a large range of diagrams, icons, symbols, text and letters necessary to use |


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| | | |
|---|---|---|
| | | complex rendering software |
| Oral Communication | 1.1, 1.2, 1.3, 2.2, 6.4 | • Uses effective listening and questioning techniques to obtain information about the design brief, system limitations, software capabilities, and requirements<br>• Presents rendering outcomes using industry-specific terminology |
| Numeracy | 1.2, 1.3, 2.1, 2.2, 3.1-3.3, 4.1-4.5, 5.1-5.3, 6.3 | • Uses whole numbers, decimals and percentages relevant to measurement, resolution aspect ratio, pixel ratio, scale, coordinates, colour, shading, and other attributes/variables in the application of rendering<br>• Interprets numerical information and applies basic mathematical calculations relating to the timelines and budgetary information |
| Interact with others | 6.4 | • Collaborates with others as required to confirm rendering output is acceptable |
| Get the work done | All | • Applies formal processes when planning the rendering requirements, producing plans with logically sequenced steps that reflect awareness of time and resource constraints<br>• Implements actions as per the plan, making slight adjustments if necessary<br>• Recognises and takes responsibility for addressing predictable, and some less predictable problems in familiar work contexts<br>• Understands the key principles and concepts underpinning the design and operation, of digital systems and tools<br>• Manages and maintains files securely in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM416 Prepare and complete image rendering processes | ICAGAM416A Prepare and complete image rendering processes | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM416 Prepare and complete image rendering processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify equipment, media and rendering software requirements according to design brief and system requirements
- use and optimise the rendering application components for best performance
- adhere to requirements related to file sizes and formats
- store the rendered components according to requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the features of software used for:
  - 3-D animation
  - 3-D modelling
  - lighting
  - rendering
  - shading
  - texturing
- explain requirements for file formats and sizes
- outline pre-rendering optimisation techniques
- explain why rendering is required for 3-D modelling, animation or game development
- explain the requirements for using computer networks for rendering.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- appropriate computer hardware
- graphic rendering software
- input and output devices
- models and scenes to be rendered
- style shots
- briefs, specifications and schedules.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM417 Apply digital effects to interactive products

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply digital effects to an interactive product.

It applies to individuals who support the design, development and programming of basic digital games, as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify and apply an interactive concept map of the production | 1.1 Catalogue the individual components to be applied to the presentation<br>1.2 Identify, then apply, an interactive concept map showing the components in a logical layout and structure<br>1.3 Prepare an interactive storyboard for the production |
| 2. Identify and apply digital effect components | 2.1 Identify the method for applying the digital effects framework to the presentation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| for the production | 2.2 Apply the framework for digital effects, using industry-standard methods<br>2.3 Refine the digital effects framework<br>2.4 Ensure that the framework conforms to project specifications |
| 3. Identify and apply digital effect components for inclusion in the presentation | 3.1 Identify the digital effect components for inclusion<br>3.2 Confirm that the digital effect components are in an appropriate format for the framework<br>3.3 Apply the digital effect components to the framework, for inclusion in the product presentation |
| 4. Apply all components into a functioning and well-designed interactive product | 4.1 Apply all the media components in the authoring environment<br>4.2 Identify the digital effects programming necessary to ensure satisfactory results<br>4.3 Identify any inconsistencies within the digital effects<br>4.4 Review and test the design, to ensure that it meets the creative and technical requirements of the brief<br>4.5 Apply the runtime version of the presentation, for inclusion into the product<br>4.6 Ensure that the presentation runs satisfactorily on all target platforms |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.4, 4.4 | • Interprets a design brief containing complex effects and interactive design terminology<br>• Interprets information in diagrams, icons, symbols, text, numbers and letters |
| Writing | 1.1, 1.2 | • Documents information on designs according to industry standards and organisational requirements |
| Numeracy | 2.4, 4.1, 4.4 | • Uses whole numbers, decimals and percentages relevant to measurement, resolution aspect ratio, pixel ratio, scale coordinates, colour, shading and other |


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| | | |
|---|---|---|
| | | attributes/variables, in the application of digital effects<br>• Interprets numerical information and applies basic mathematical calculations, relating to the time lines and budgetary information |
| Interact with others | 1.1, 1.2, 1.3 | • Constructs a message with some understanding of the purpose, audience needs and expectations, when developing a concept map and storyboard |
| Get the work done | All | • Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools, and uses these when applying digital effects |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM417 Apply digital effects to interactive products | ICAGAM417A Apply digital effects to interactive products | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM417 Apply digital effects to interactive products

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare concept maps and storyboards according to requirements
- produce a functioning interactive product that:
  - meets a design brief
  - incorporates digital effects components
  - demonstrates use of effective and creative design principles
  - demonstrates use of visual communication principles.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the component-based programming skills required to produce interactive products
- describe the technical constraints that hardware or software imposes on design and development
- outline the techniques for applying:
  - concept development skills
  - concept visualisation skills
  - framework integration skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:


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- appropriate computer hardware
- 3-D animation software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM418 Use simple modelling for animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan and produce an animated sequence.

It applies to individuals who support the design, development and programming of basic digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify the animation requirements of models | 1.1 Clarify the animation requirements and design specifications for the model, in consultation with the relevant personnel, and according to the production documentation<br>1.2 Examine the most appropriate animation techniques for the animation, in order to determine which modelling techniques to use<br>1.3 Identify the file format and delivery platform for animated sequences |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Identify factors that may influence the animation design approach<br>1.5 Clarify work flow sequences, in consultation with the relevant personnel, to ensure that production schedule deadlines are met |
| 2. Plan the approach | 2.1 Research animations, artworks and other creative sources that may inspire visual design ideas<br>2.2 Generate a range of animation ideas that are technically feasible, respond to briefs, and provide creative solutions to all design issues<br>2.3 Present animation ideas to the relevant personnel using appropriate design techniques<br>2.4 Adjust the approach to incorporate feedback, and agree on final design concepts<br>2.5 Discuss and select animation software with the relevant personnel to ensure that the animated sequences of the model meet specified outcomes<br>2.6 Analyse audio assets supplied for animations, as required |
| 3. Produce animated sequences for review | 3.1 Create animations of models using animation and modelling techniques to suit design requirements<br>3.2 Apply basic animation principles, screen principles, visual design principles and communication principles<br>3.3 Apply real-world camera techniques to the virtual cameras used in the animation<br>3.4 Render the completed animated sequences<br>3.5 Save and store the animated sequences using appropriate output file formats, standard naming conventions, and version-control protocols<br>3.6 Present the animated sequences of simple models to the relevant personnel for evaluation by agreed deadlines |
| 4. Finalise animated sequences | 4.1 Review the animated sequences to assess creative solutions to the design briefs, appropriateness to users or audience, and technical feasibility<br>4.2 Discuss and confirm with the relevant personnel, additional requirements or modifications, and complete any changes as required |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.1, 2.4, 2.5, 4.2 | • Identifies, evaluates and interprets texts containing complex technical, 3-D modelling and animation terminology to clarify requirements and research ideas<br>• Interprets and comprehends computer generated text, audio tracks, abbreviations, symbols, icons, numbers and letters necessary to use 3-D modelling and animation software |
| Oral Communication | 1.1, 1.5, 2.1, 2.3, 2.4, 2.5, 3.6, 4.1, 4.2 | • Participates in verbal exchanges of ideas and solutions, using a range of animation and 3-D modelling terminology, and effective listening and questioning techniques to clarify information<br>• Presents designs speaking clearly and concisely, using specific terminology and appropriate non-verbal features |
| Numeracy | 1.1, 1.4, 1.5, 2.2, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1 | • Uses whole numbers, decimals and percentages relevant to file size, software and hardware specifications, measurement, scale, form, weight, volume, colour, shading, and other attributes/variables in the development of animated sequences |
| Get the work done | All | • Takes responsibility for planning, sequencing and prioritising tasks to achieve required outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and uses problem-solving processes to determine solutions<br>• Contributes to improvement of work practices by applying the basic principles of analytical and lateral thinking<br>• Uses digital technologies and systems to access information, enter data and code, present information and communicate with others |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM418 Use simple modelling for animation | ICAGAM418A Use simple modelling for animation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM418 Use simple modelling for animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create digital animated sequences of a model that:
  - demonstrates the principles of simple model animation, basic screen, visual design and communication
  - meets the technical requirements of specific platforms
  - satisfies the design brief and client requirements
  - meets the production deadlines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline basic digital animation techniques
- outline the principles of animation, screen, visual design and communication in relation to the production of animated sequences
- describe the features of a range of delivery platforms for animated sequences
- discuss the issues and challenges that arise in the context of creating models for digital animations
- outline the stages in the production process from initial design through to finished product
- outline the roles and responsibilities of project team members.

## Assessment Conditions

conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:


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- appropriate computer hardware, software and games engines
- file storage
- design specifications and production documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM419 Build a database to support a computer game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, and to implement, a relational database for the management of the persisted- state world of a computer game.

It applies to individuals who work as game programmers or junior analyst programmers in the digital and interactive games industry, either as small independent specialists, or as part of a larger team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Verify the database model | 1.1 Verify that the game architecture and system implementation requirements have been addressed by the proposed database architecture<br>1.2 Correlate data model entities and their attributes with the game artefacts, and the game design requirements<br>1.3 Verify that the entity relationships defined in the data model implement the game-design and game-play rules |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Verify the estimates of the amounts of data storage required, and the data types defined by the data model<br>1.5 Document design inconsistencies<br>1.6 Review the database model and address, and correct any inconsistencies<br>1.7 Define the database test data |
| 2. Create the physical database design | 2.1 Implement the conceptual data model design as a physical database design<br>2.2 Determine the default database file size, according to the data model storage estimates<br>2.3 Determine game data input and output workload estimates<br>2.4 Determine the reliability and performance requirements<br>2.5 Define the minimum hardware requirements to support the input and output workload and reliability or performance requirements<br>2.6 Configure the database management system in order to use minimum hardware requirements<br>2.7 Refine and confirm the database test data |
| 3. Implement the physical database prototype | 3.1 Write structured query language (SQL) scripts to create physical database files according to the design requirements<br>3.2 Write SQL scripts to create database tables<br>3.3 Implement the primary key constraints<br>3.4 Implement the foreign key constraints<br>3.5 Define, and script, stored procedures for selecting, inserting, updating and deleting data<br>3.6 Define and script insert statements for test data<br>3.7 Execute SQL scripts and database, including test data |
| 4. Test the database and document results | 4.1 Document the entity integrity tests, and results<br>4.2 Document the referential integrity tests, and results<br>4.3 Document the input and output performance tests, and results<br>4.4 Document the stored procedures tests, and results |
| 5. Review, evaluate and correct database performance | 5.1 Review the test result deficiencies<br>5.2 Define, evaluate and test the deficiencies, and ensure that corrective measures are implemented |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.3 Implement corrections to the database |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 1.6, 2.2, 2.3, 2.4, 2.5, 2.7, 5.1 | • Interprets and analyses documents containing complex games-design and database-architecture terminology, to determine database requirements and identify design inconstancies<br>• Interprets and comprehends a large range of diagrams, flow charts, code, syntax, icons, symbols, text, numbers and letters necessary to design and develop a database |
| Writing | 1.5, 1.7, 2.1, 3.1, 3.2, 3.5, 3.6, 3.7, 4.1, 4.2, 4.3, 4.4 | • Uses correct spelling and grammar, plain English, specific terminology and appropriate document layout, when documenting database test data and test results<br>• Uses the appropriate programming code, syntax and conventions to develop the database |
| Oral Communication | 1.1, 1.2, 1.3, 1.4, 2.2, 2.3, 2.4 | • Employs effective listening and open-questioning techniques to clarify design requirements and project scheduling, and to obtain feedback |
| Numeracy | 1.1-1.7, 2.1-2.7, 3.1-3.7 | • Uses a wide range of applied mathematical calculations and functions to design, develop, and evaluate the database |
| Get the work done | All | • Plans a range of routine, and some non-routine, tasks, aiming to achieve required outcomes efficiently and effectively<br>• Makes a range of critical and non-critical decisions in relatively complex situations, using analytical processes to decide on appropriate courses of action<br>• Evaluates outcomes to identify opportunities for improvement within own work context<br>• Utilises a broad range of features within applications to complete required tasks |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM419 Build a database to support a computer game | ICAGAM419A Build a database to support a computer game | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM419 Build a database to support a computer game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- interpret a conceptual database model
- create a database from a conceptual model, that allows for the persistence of state data for a computer game
- evaluate, and improve, the performance of a database built to support a computer game.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify computer hardware specifications and performance required to support database development
- discuss the creation, use and testing of stored procedures
- explain why input and output parameters are required
- explain database stress testing and stress testing software
- discuss the principles of database testing methodologies
- describe object-oriented database management systems
- discuss the similarities and difference between relational database management systems:
  - IBM DB2
  - Microsoft Access
  - Microsoft SQL (MS SQL) server
  - MySQL
  - Oracle
  - Postgre Structured Query Language (Postgre SQL)


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- discuss relational database modelling building blocks and theory, including attributes, entity relationship modelling and normalisation of database tables
- discuss relationship cardinality and connectivity:
  - 1:1
  - 1:M
  - M:N
- outline the features, and functions, of structured query language (SQL), including data definition language and data manipulation language
- discuss the evolution of relational database management systems and their relationship to the flat file, hierarchical, and network data storage legacy of games
- outline the important functions of a relational database management system within the context of a computer game
- interpret data access languages, such as SQL and language-integrated query (LINQ)
- interpret data application programming interfaces (APIs) including:
  - ADO.Net
  - data integrity
  - disaster recovery and backups
  - data dictionary
  - data storage
  - security requirements of the data
  - transforming and presenting the data
- discuss the importance of data models
- describe the different types of data models, including Chen and Crow's Foot models
- describe the relationship between game-play rules and the modelling of the database structure.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer-aided software engineering and modelling tools
- a relational or object-oriented database management system
- performance testing and analysis software for selected database management system/ game architecture specifications
- the game design and requirements documentation
- the client or server hardware
- networking infrastructure sufficient to simulate the game architecture specifications.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM501 Create design concepts for digital games and 3-D media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to work innovatively in game development, using thoughtful strategies and well-developed technical skills to accommodate a specified design brief.

It applies to individuals who support the design, development and programming of interactive 3-D media and digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify and analyse commonly used design concepts for games and 3-D media | 1.1 Obtain the project brief and other relevant organisational documents and procedures<br>1.2 Research and identify commonly used design concepts in digital games and interactive 3-D media<br>1.3 Analyse and interpret chosen common design concepts used in digital games and interactive 3-D media |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Discuss design considerations for designing a digital game or an interactive 3-D media concept |
| 2. Identify appropriate software packages used for a digital game and 3-D concept design | 2.1 Identify and review the appropriate range of industry-standard software available to develop design concepts<br>2.2 Assess the software related to the concept design process requirements<br>2.3 Discuss the technical specifications for the development process<br>2.4 Select the software package |
| 3. Use a chosen software package | 3.1 Run the selected software package and become familiar with the user interface<br>3.2 Create new files, organise and develop a file structure<br>3.3 Learn the required tools and components used to create, and develop a digital game, or interactive 3-D media concept |
| 4. Create and develop the concept components for a digital game or interactive media | 4.1 Design a heads-up display for a digital game or 3-D interactive media<br>4.2 Consider specific processes for the heads-up display elements<br>4.3 Document the design, necessary programming process and requirements needed to implement the heads-up display<br>4.4 Use the chosen software package to create and develop the visual design elements, and components, to be used for the heads-up display |
| 5. Implement a design concept into a game or 3-D interactive media | 5.1 Load in the images required and write the code to implement the heads-up display into an existing framework<br>5.2 Write code to demonstrate heads-up display capabilities with implemented concepts |
| 6. Evaluate the implementation | 6.1 Demonstrate implementation to the relevant personnel<br>6.2 Accept feedback to incorporate into the final design<br>6.3 Assess and refine the concept with the relevant personnel<br>6.4 Evaluate the usability of the concept’s components<br>6.5 Reflect on possible changes to improve the visual design and capabilities of the components |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.3 | • Uses a range of investigative and analysis techniques to acquire the knowledge needed to use tools, and other components, effectively for digital games and 3-D media production |
| Reading | 1.1, 1.3 | • Interprets and comprehends a large range of textual and diagrammatic information to inform instructional, technical, and conceptual requirements |
| Writing | 1.1, 3.2, 4.1, 4.3, 5.1, 5.2, 6.2, 6.3 | • Uses correct spelling and grammatical structures, clear language, and technical terminology when explaining technical and design requirements |
| Oral Communication | 1.1, 1.4, 2.3, 6.2 | • Elicits information using effective listening and open questioning techniques<br>• Speaks clearly and concisely, converting highly technical language and terminology into plain English, when providing information |
| Numeracy | 4.1, 4.3, 4.4 | • Uses whole numbers, decimals and percentages, when manipulating software to achieve the required technical and design components |
| Interact with others | 6.1, 6.3 | • Cooperates and collaborates with others as part of routine activities, and to elicit support and feedback |
| Get the work done | 1.1-1.4, 2.1-2.4, 3.1-3.3, 4.1-4.4, 5.1, 5.2, 6.1-6.5 | • Actively sources, analyses and evaluates applications, with the potential to meet 3-D design requirements<br>• Understands the purposes and uses the key features of specific digital systems, and tools, and operates them effectively to complete design tasks<br>• Understands the importance of file structure, and takes responsibility for data integrity and management<br>• Uses creativity and initiative in 3-D design<br>• Plans, organises and completes work according to defined requirements and schedules taking responsibility for decisions, and sequencing tasks to achieve efficient outcomes<br>• Uses a systematic process to evaluate work and to implement improvements |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM501 Create design concepts for digital games and 3-D media | ICAGAM501A Create design concepts for digital games and 3-D media | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM501 Create design concepts for digital games and 3-D media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate original and innovative approaches to the creative development of a game
- implement game development and production strategies
- maintain the integrity of the design brief
- develop concept art and design specifications for heads-up displays, splash screens, start screens and game field screens, consistent with an identified game genre
- develop technical specifications for game mechanics, artificial intelligence, physics, sound, game play and overall usability
- implement a working heads-up display with basic functionalities.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain basic programming techniques
- discuss the capabilities and constraints of game engines
- outline concept development and visualisation skills
- discuss computer game development, including specific terminology
- describe current game-play hardware and software products
- outline the human resources required in the process of creating a game and their respective skills and technology requirements
- summarise work health and safety (WHS) requirements for:
  - ergonomics
  - electrical safety
- discuss risk and critical path management


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- summarise the technical constraints that hardware imposes on:
  - software development
  - graphics requirements
  - code development
  - creative visual design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM503 Create a complex 3-D interactive computer game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use original and innovative ideas, and industry-standard production techniques, to create functional games according to a specific design brief.

It applies to individuals who support the design, development and programming of interactive 3-D media, and digital games, as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the required game assets in a team environment | 1.1 Obtain the project brief and other relevant documents<br>1.2 Identify the game production assets required to meet the creative and production requirements, and technical specifications<br>1.3 Discuss the formats of assets, and issues of asset integration, with the appropriate personnel<br>1.4 Determine the sequence for the development of a beta-version |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | prototype for testing game play<br>1.5 Create a schedule for production and testing<br>1.6 Determine strategies for monitoring production progress against the schedule |
| 2. Identify the capability of game-engine software and tools and make a selection in a team environment | 2.1 Identify and review the range of industry-standard game-engine software and development tools available<br>2.2 Assess the software and tools related to the specified game concept and play requirements<br>2.3 Discuss considerations for the selection of game-engine software with the relevant personnel, to ensure that the selection will meet the specified outcomes<br>2.4 Select the game-engine software and development tools |
| 3. Create or acquire the required assets for a game in a team environment | 3.1 Establish an environment for a project that supports sharing of project assets produced by team members<br>3.2 Review the attributes of the assets required in a game project related to the chosen game engine<br>3.3 Create or acquire the visual assets for a games project<br>3.4 Customise asset attributes to suit the game design, and chosen game engine |
| 4. Use game-engine software and development tools in a team environment | 4.1 Collaborate in the use of tools, and features, of software relevant to the game-production process<br>4.2 Create, modify or access scripts or code to combine assets, and achieve agreed project goals<br>4.3 Create and check game-play elements, according to the creative and technical requirements<br>4.4 Test and run the game prototype as a presentation, to ensure that sequences meet the creative, production and technical requirements |
| 5. Evaluate the game prototype in a team environment | 5.1 Demonstrate the initial prototype to the relevant personnel<br>5.2 Evaluate against criteria, including the achievement of a creative and user-friendly product<br>5.3 Discuss and agree on required changes<br>5.4 Assist, if required, in tests and user trials<br>5.5 Evaluate the feedback from user trials<br>5.6 Confirm the endorsement from relevant personnel to develop |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the prototype into a complete product |
| 6. Transform the prototype into final publication | 6.1 Make the necessary changes, as indicated by user trials<br>6.2 Integrate all game elements, as required by the specifications<br>6.3 Make final checks to ensure that all sequences conform to the navigation design<br>6.4 Assemble a final publication for distribution |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1, 4.2, 4.3, 6.2, 6.3 | • Interprets and comprehends a large range of textual and diagrammatic information, to inform instructional, technical and conceptual requirements |
| Writing | 4.2, 5.5, 5.6, 6.4 | • Uses correct spelling and grammatical structures, clear language, and technical terminology when explaining technical and design requirements |
| Oral Communication | 1.3, 2.3, 5.5, 5.6 | • Elicits information using effective listening and open questioning techniques<br>• Speaks clearly and concisely, converting highly technical language and terminology into plain English, when providing feedback and other information |
| Numeracy | 1.5, 4.1, 4.2, 4.3, 4.4 | • Uses whole numbers, decimals and percentages when manipulating software, to achieve the required technical and design components<br>• Defines timeframes in accordance with the schedule requirements |
| Interact with others | 3.1, 4.1, 5.1, 5.3, 5.4, 5.6 | • Cooperates and collaborates with others as part of routine activities to achieve team results, and to confirm that the outcomes meet the requirements |
| Get the work done | 1.1-1.6, 2.1-2.4, 3.1-3.4, 4.1-4.4, 5.1-5.6, 6.1-6.4 | • Actively sources, analyses and evaluates applications, tools, and assets for the potential to meet creative requirements<br>• Understands the purposes, and uses key features, of specific digital systems and tools, and operates them effectively in order to complete design tasks |


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| | | |
|---|---|---|
| | | • Uses creativity and initiative in game design<br>• Plans, organises, and completes work according to defined requirements and schedules, taking responsibility for decisions, and sequencing tasks to achieve efficient outcomes<br>• Uses a systematic process to evaluate work and to implement improvements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM503 Create a complex 3-D interactive computer game | ICAGAM503A Create a complex 3-D interactive computer game | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM503 Create a complex 3-D interactive computer game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine required game assets
- apply a variety of strategies for game trialling and testing
- apply original and innovative approaches to the creative development of a 3-D game
- implement game development and production strategies
- maintain the integrity of the design brief and game design document
- communicate, collaborate and participate in a team environment
- transform the prototype into final publication.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain basic programming techniques
- summarise the capabilities and constraints of game engines
- discuss the process used for computer games development, including specific terminology
- provide a detailed summary of current game-play hardware and software products
- explain risk and critical path management
- outline technical constraints that hardware imposes on:
  - graphics requirements
  - code development
  - creative visual design.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM504 Manage interactive media production

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage interactive media or game production.

It applies to individuals who manage personnel in the interactive media or game development industry who may be concept artists, designers, programmers, animators and others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Attend to the placement of staff for a digital media production | 1.1 Undertake the work placement of a production team<br>1.2 Ensure punctuality and appropriate dress<br>1.3 Follow organisational guidelines to support workplace culture, and the corporate image |
| 2. Monitor workplace structure and staff responsibilities | 2.1 Identify the duties carried out by various personnel<br>2.2 Observe the lines of reporting and communication<br>2.3 Determine the responsibilities of own area or department |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Identify appropriate behaviours and attitude | 3.1 Apply communication skills to interact effectively with other staff and clients<br>3.2 Demonstrate behaviour that reflects the organisational culture |
| 4. Carry out tasks within the range or context specified for the workplace | 4.1 Complete set tasks according to instructions and deadlines<br>4.2 Discuss any problems or concerns with assigned work with the supervisor or a mentor |
| 5. Report on workplace experience | 5.1 Maintain a log book that records daily activities<br>5.2 Complete a short report of the work experience |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.1, 4.1 | • Interprets and comprehends instructions, including textual and diagrammatic information to inform job requirements |
| Writing | 1.3, 3.1, 5.1, 5.2 | • Uses correct spelling and grammatical structures, clear language, and technical terminology when recording activities and writing reports |
| Oral Communication | 3.1, 4.2 | • Elicits information using effective listening and open questioning techniques<br>• Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information |
| Navigate the world of work | 1.1-1.3, 2.1-2.3 | • Draws on a repertoire of experience to facilitate understanding of the culture and the environment |
| Interact with others | 1.2, 1.3, 3.1, 3.2, 4.2 | • Cooperates and collaborates with others as part of routine activities, and to elicit support and feedback<br>• Collaborates with others sharing information to build strong connections, demonstrating behaviours reflective of organisational culture |
| Get the work done | 4.1, 5.1, 5.2 | • Plans, organises and completes work according to defined requirements and schedules, taking responsibility for decisions, and scheduling tasks to |


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| | | |
|---|---|---|
| | | achieve efficient outcomes<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause of a problem rather than the symptom |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM504 Manage interactive media production | ICAGAM504A Manage interactive media production | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM504 Manage interactive media production

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- monitor behaviour of self and others to ensure compliance with the workplace culture
- operate according to the lines of reporting and required method of communication
- allocate tasks to appropriate staff members
- plan and complete assigned tasks in a production environment, to meet deadlines
- demonstrate effective communication, listening and questioning skills with various people, including use of industry terminology.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise basic 3-D techniques
- explain the budgeting and scheduling considerations for 3-D design
- discuss capabilities and constraints of 3-D packages
- outline current game-play hardware and software products
- discuss the technical constraints that hardware or software imposes on graphics and visual design
- explain the process required to produce a 3-D animation sequence or components
- summarise the roles and responsibilities of team members producing 3-D animations and digital effects
- summarise effective strategies for communicating with production teams and clients.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- an environment where interactive media production may be carried out
- organisational guidelines and policies
- relevant people.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM506 Create complex code for mobile game devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create complex code for mobile game devices.

It applies to individuals working as programmers who support the design, development and programming of interactive 3-D media and digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research and identify appropriate implementations for complex code for mobile game devices | 1.1 Obtain, or create, a mobile game device framework<br>1.2 Identify the tools and technology for creating applications for mobile game devices<br>1.3 Research and identify the appropriate game physics implementation, for a mobile game device<br>1.4 Research and identify the appropriate artificial intelligence |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | (AI) implementation, for a mobile game device<br>1.5 Research and identify the appropriate shaders, for a mobile game device<br>1.6 Identify the technical limitations and constraints of the mobile device within the game |
| 2. Implement physics code for mobile game devices | 2.1 Develop the code for simulating velocity and momentum<br>2.2 Develop the code for simulating acceleration and gravity<br>2.3 Develop the code for simulating frictional effects<br>2.4 Develop the code for simulating collisions and collision detection<br>2.5 Implement the code for game physics in the mobile game device |
| 3. Develop and implement AI for mobile game devices | 3.1 Use finite state machines to model behaviour<br>3.2 Develop path-finding algorithms<br>3.3 Develop code based on a genetic algorithm<br>3.4 Implement the code for AI in the mobile game device |
| 4. Develop and implement the shader for mobile game devices | 4.1 Develop code based on the shading algorithm<br>4.2 Implement the shading algorithm code in the mobile game device |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4 | • Interprets and comprehends instructions, briefs, technical and conceptual information to inform job requirements |
| Numeracy | 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.2, 3.3, 3.4, 4.1, 4.2 | • Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading, and other variables |
| Get the work done | 1.1-1.6, 2.1-2.5, 3.1-3.4, 4.1, 4.2 | • Plans, organises and completes work according to defined requirements and schedules, taking responsibility for decisions, and scheduling tasks to achieve efficient |


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| | | |
|---|---|---|
| | | outcomes<br>• Uses a high level of creativity and initiative in coding<br>• Actively sources, analyses and evaluates tools and technologies with the potential to meet requirements<br>• Understands the purposes and uses key features of specific digital systems and tools, and operates them effectively to complete coding tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM506 Create complex code for mobile game devices | ICAGAM506A Create complex code for mobile game devices | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM506 Create complex code for mobile game devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use research to determine appropriate implementations for mobile game devices
- develop and implement the code for game physics in a mobile device
- develop and implement the artificial intelligence for a mobile device
- develop and implement shading algorithms for a mobile device.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss relevant programming techniques
- outline the budgeting and scheduling considerations for game design
- outline the capabilities and constraints of game engines
- discuss computer game development, including specific terminology
- outline the concept development
- describe the concept visualisation
- provide a detailed summary of current game-play hardware and software products
- outline environmental impact and sustainability considerations
- discuss the human resources required in the process of creating a game, and describe the team’s respective skills and technology requirements
- explain risk and critical path management
- provide a detailed explanation of the technical constraints that hardware imposes on:
  - software development
  - graphics requirements
  - code development


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- creative visual design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM507 Develop intermediate 3-D software for games and interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop intermediate 3-D software for games or interactive media.

It applies to individuals working as programmers who support the design, development and programming of interactive 3-D media and digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Build a 3-D application using a provided framework or engine | 1.1 Employ integrated development environment facilities to include existing 3-D libraries suitable for games or interactive media production<br>1.2 Use existing library facilities and appropriate language, to facilitate the configuration of a 3-D environment compatible with a specified platform |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Instantiate virtual objects in a simple 3-D environment<br>1.4 Create mesh primitives using 3-D library routines<br>1.5 Generate code to manipulate 3-D objects, including cameras, lights and mesh primitives<br>1.6 Import pre-constructed meshes from persistent storage into a 3-D environment, using scripts or library routines<br>1.7 Apply class inheritance to modify or extend existing 3-D class<br>1.8 Select and apply, exception handling techniques to ensure program stability in a simple 3-D environment |
| 2. Create a graphical user interface (GUI) for a 3-D environment | 2.1 Employ integrated development environment facilities to include existing 3-D compatible graphical user interface (GUI) controls suitable for games, or interactive media production<br>2.2 Combine predefined GUI elements to create a simple interface for a 3-D environment<br>2.3 Modify scripts or code to customise existing GUI elements<br>2.4 Write code that processes events raised by a GUI in a 3-D environment<br>2.5 Create GUI events to modify the configuration of a simple 3-D environment |
| 3. Debug a 3-D application | 3.1 Use stand-alone debugging tools, or tools provided by an integrated development environment, to examine variables and trace running code<br>3.2 Use debugging facilities, such as log windows or files, to detect logical and coding errors |
| 4. Deploy documentation tools | 4.1 Investigate and select integrated, or third-party, documentation tools<br>4.2 Deploy integrated, or third-party, tools to create and maintain code documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.2, 3.1, 3.2 | • Interprets and comprehends instructions, briefs, technical and conceptual information, to inform job requirements |
| Writing | 1.2, 1.5, 2.3, 2.4 | • Writes and customises precise code using the required language, industry-approved coding techniques, and programming practices |
| Numeracy | 1.5, 2.3 | • Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading, and other variables |
| Get the work done | 1.1-1.8, 2.1-2.5, 3.1, 3.2, 4.1, 4.2 | • Plans, organises and completes work according to defined requirements, and schedules, taking responsibility for decisions, and sequencing tasks to achieve efficient outcomes<br>• Actively sources, analyses and evaluates applications or tools with the potential to meet development requirements<br>• Understands the purposes, and uses key features, of specific digital systems and tools, and operates them effectively to complete development tasks<br>• Takes responsibility for data integrity and management |

# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Configuration of a 3-D environment must include: | • device selection<br>• game resolution<br>• screen colour depth<br>• output performance, including:<br>• anti-aliasing<br>• level of detail<br>• filtering<br>• caustics and refraction. |
| Virtual objects must include: | • cameras<br>• lights<br>• viewports. |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM507 Develop intermediate 3-D software for games and interactive media | ICAGAM507A Develop intermediate 3-D software for games and interactive media | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM507 Develop intermediate 3-D software for games and interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create at least one 3-D framework or library that includes an appropriate graphical user interface (GUI)
- check for coding errors and debug the application
- select and deploy documentation tools
- create documentation generated by appropriate tools.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain 3-D application development
- provide a detailed explanation of debugging techniques
- outline documentation techniques
- discuss object-oriented 3-D programming concepts and language.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and must include access to:

- suitable 3-D hardware and software
- technical materials and manuals
- the detailed 3-D framework, or engine, on which to build the application.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM508 Develop complex 3-D software for games and interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to employ multiple 3-D frameworks or libraries, and build an appropriate graphical user interface (GUI) to develop complex 3-D applications with documentation generated using appropriate tools.

It applies to individuals working as games programmers who support the design, development and programming of 3-D media and digital games as part of a larger development team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Build complex 3-D applications using multiple frameworks provided or engines | 1.1 Employ integrated development environment facilities to include existing 3-D, audio and physics libraries suitable for games or interactive media production<br>1.2 Configure a 3-D environment compatible with a specified platform by using existing library facilities and appropriate language |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Instantiate virtual objects in a complex 3-D environment<br>1.4 Import complex pre-constructed models retrieved from persistent storage into a 3-D environment using scripts or library routines<br>1.5 Use code to animate 3-D objects required by game play<br>1.6 Use code to handle collisions between objects in a 3-D environment<br>1.7 Use code to manipulate the texturing and other attributes of models during run-time execution<br>1.8 Incorporate environmental elements to enhance user experience<br>1.9 Select and use appropriate exception handling techniques to ensure program stability in a complex 3-D environment that uses multiple libraries |
| 2. Create a complex graphical user interface (GUI) for a 3-D environment | 2.1 Employ integrated development environment facilities to include existing 3-D compatible GUI controls suitable for complex games or interactive media production<br>2.2 Combine predefined GUI elements to create a complex interface for a 3-D environment<br>2.3 Modify scripts or code to customise existing GUI elements for a complex interface<br>2.4 Write code that processes events raised by a complex GUI in a 3-D environment<br>2.5 Use GUI events to modify the configuration of a complex 3-D environment |
| 3. Debug a complex 3-D application | 3.1 Use stand-alone debugging tools or tools provided by an integrated development environment to examine variables and trace running code across multiple libraries<br>3.2 Employ debugging facilities, such as log windows or files to detect logical and coding errors |
| 4. Use documentation tools | 4.1 Identify and choose suitable integrated or third-party documentation tools<br>4.2 Create and maintain code documentation for a complex 3-D project using selected integrated or third-party tools |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4 | • Interprets and comprehends instructions, briefs, technical and conceptual information, to inform job requirements |
| Writing | 1.2, 1.5, 1.6, 1.7, 2.3, 2.4, 4.2 | • Writes and customises precise code using specialised language, industry-approved coding techniques, and programming practices |
| Numeracy | 1.5-1.7, 2.3, 2.4 | • Uses whole numbers, decimals, and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading and other variables |
| Get the work done | 1.1-1.9, 2.1-2.5, 3.1, 3.2, 4.1, 4.2 | • Plans, organises and completes work according to defined requirements and schedules taking responsibility for decisions, and sequencing tasks to achieve efficient outcomes<br>• Actively sources, analyses and evaluates applications, or tools, with the potential to meet development and coding requirements<br>• Understands the purposes and uses key features of specific digital systems and tools, and operates them effectively to complete complex development tasks<br>• Takes responsibility for data integrity and management |

# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Configure a 3-D environment must include: | • device selection<br>• game resolution<br>• screen colour depth<br>• output performance including:<br>• anti-aliasing<br>• level of detail<br>• filtering<br>• caustics and refraction. |
| Virtual objects must include: | • audio managers |


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| | |
|---|---|
| | • cameras<br>• lights<br>• physics managers<br>• viewports. |
| Animate must include: | • animation selection/playback for pre-constructed models<br>• based on user input<br>• driven by code<br>• dynamic camera movement as required by game play. |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM508 Develop complex 3-D software for games and interactive media | ICAGAM508A Develop complex 3-D software for games and interactive media | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM508 Develop complex 3-D software for games and interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- employ multiple 3-D frameworks, engines and libraries
- build a complex graphical user interface (GUI) for a 3-D environment
- create and maintain code documentation, using appropriate tools.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide a detailed explanation of complex 3-D application development
- outline debugging techniques
- summarise documentation techniques
- explain object-oriented 3-D programming concepts
- describe object-oriented 3-D programming language
- discuss techniques for using a GUI to interact with a user
- describe techniques for using multiple games-oriented libraries.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- suitable 3-D equipment
- software and hardware
- technical manuals


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- existing multiple frameworks, search engines or games-oriented libraries.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM509 Design interactive 3-D applications for scientific and mathematical modelling

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design interactive 3-D applications for scientific and mathematical modelling.

It applies to individuals with object-oriented programming skills working in any industrial context that requires 3-D computer simulation of a well-defined environment, system or set of relationships.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine and confirm business expectations and needs | 1.1 Apply skills to determine business requirements and verify the accuracy of the information gathered<br>1.2 Determine the critical environmental, systemic relationships that require simulation in a 3-D environment<br>1.3 Identify critical data sources required by simulations or modelling |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Document critical environmental, systemic relationships and data sources that require simulation in a 3-D environment |
| 2. Design an interactive 3-D application for scientific or mathematical modelling | 2.1 Use prototyping tools to provide proof of concept for environmental and systemic relationships<br>2.2 Identify technologies and platforms suitable for the deployment of scientific or mathematical modelling<br>2.3 Apply object-oriented programming principles to design classes and algorithms to support scientific or mathematical modelling in an interactive 3-D environment |
| 3. Design a 3-D environment that simulates a scientific or mathematical model | 3.1 Select appropriate visual representation for elements of a 3-D scientific or mathematical model<br>3.2 Analyse required interaction between user and a 3-D environment<br>3.3 Design a graphical user interface (GUI) to support required interaction between use and a 3-D environment |
| 4. Develop procedures to test a scientific or mathematical model | 4.1 Develop testing procedures and standards that verify modelling integrity writing,<br>4.2 Document testing procedures and standards that verify modelling integrity |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Interprets, analyses and comprehends instructions, briefs, technical and conceptual information to inform job requirements. |
| Writing | 1.4, 2.3, 4.1, 4.2 | • Writes and customises precise code using specialised language, industry-approved coding techniques, and programming practices<br>• Verifies modelling integrity, by documenting testing procedures that explore expected results, parallel processing and test data |
| Numeracy | 2.2, 2.3, 3.3, 4.1, 4.2 | • Uses whole numbers, decimals and percentages when |


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| | | |
|---|---|---|
| | | manipulating measurement, scale, ratio, coordinates, colour, shading, and other variables during application phase<br>• Designs complex algorithms |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.1-3.3, 4.1, 4.2 | • Plans, organises and completes work according to defined requirements and schedules taking responsibility for decisions, and sequencing tasks to achieve efficient outcomes<br>• Takes responsibility for decisions regarding end-product evaluation, data integrity and management<br>• Understands the purposes and uses key features of specific digital systems and tools, and operates them effectively to complete development tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM509 Design interactive 3-D applications for scientific and mathematical modelling | ICAGAM509A Design interactive 3-D applications for scientific and mathematical modelling | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM509 Design interactive 3-D applications for scientific and mathematical modelling

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine business requirements and select data to be used in a 3-D computer simulation or mathematical modelling application
- design an interactive 3-D environment that reflects scientific or mathematical modelling
- develop and document testing procedures and standards to verify modelling.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide a detailed explanation of documentation techniques
- outline object-oriented 3-D programming design methodologies
- summarise object-oriented 3-D programming principles
- discuss data sources and business expectations and needs
- explain techniques for using a graphical user interface (GUI) to interact with a user
- provide a detailed summary of testing procedures
- describe how 3-D technologies can simulate scientific or mathematical models.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- suitable 3-D equipment, software and hardware
- technical manuals


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- examples of scientific or mathematical models.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM510 Prepare games for different platforms and delivery modes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to build, maintain and test games across multiple system platforms.

It applies to individuals with games programming skills, and other personnel, working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Produce a game package for multiple platforms | 1.1 Research and identify cross-platform installers<br>1.2 Use an installer to package a game for multiple platforms |
| 2. Develop a cross-platform project | 2.1 Identify the cross-platform integrated development environment (IDE)<br>2.2 Identify cross-platform renderer libraries, physics libraries, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | audio libraries and network libraries<br>2.3 Source or compile cross-platform libraries<br>2.4 Compile a project for multiple platforms<br>2.5 Test and maintain the cross-platform software project<br>2.6 Use platform-specific input devices |
| 3. Compile a report on cross-platform software development | 3.1 Identify and document issues in cross-platform development<br>3.2 Develop an awareness of cross-platform hardware |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.2 | • Extends understanding of delivery modes and platforms by incorporating the results of trialling and testing |
| Reading | 1.1, 2.1, 2.2 | • Interprets, analyses and comprehends complex instructions, briefs, numerical code, technical data, and conceptual information, to inform job requirements |
| Writing | 3.1 | • Prepares evaluative material for a specific audience using clear and detailed language to convey information and requirements |
| Get the work done | 1.1, 1.2, 2.1-2.6, 3.1 | • Plans, organises and completes work according to defined requirements and schedules, sequencing tasks to achieve efficient outcomes<br>• Uses systematic, analytical processes in complex, routine and non-routine situations gathering information, identifying potential solutions, and evaluating options<br>• Takes responsibility for decisions regarding end-product testing and data integrity, and management<br>• Actively sources applications or tools with the potential to meet development requirements |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM510 Prepare games for different platforms and delivery modes | ICAGAM510A Prepare games for different platforms and delivery modes | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM510 Prepare games for different platforms and delivery modes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce a cross-platform game project
- identify and use cross-platform integrated development environment (IDE) libraries and installers
- test and maintain a cross-platform project
- document issues identified for cross-platform development.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise current cross-platform IDEs
- explain evaluation techniques for cross-platform development libraries
- summarise research methods for cross-platform development and distribution
- outline testing procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage
- computers running various operating systems


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- IDEs and libraries
- installers for product distribution
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM511 Manage testing of games and interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to define requirements and manage the testing of games, and interactive media, to enable timely product release.

It applies to individuals who ensure the delivery of well-tested, quality software products in the marketplace.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the quality requirements statement that will enable product release | 1.1 Review the picture of the product in the market place to determine high-level requirements provided by the product, for expected clients, considering all types of requirements<br>1.2 Define a releasable product in terms of outstanding bugs, to enable a limited release and a complete product release<br>1.3 Summarise findings into a product release, enabling quality requirements statement<br>1.4 Confirm that the client requirements and development |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | specifications are in agreement for product release, to enable the preparation of a quality requirements statement |
| 2. Define test plan that enables testing of required quality as defined by quality requirements statement | 2.1 Determine expected test cycles during the software development life cycle, considering the development methodology in use and the quality requirements for the product's release<br>2.2 Determine the types of testing to be performed during the test cycles, to enable the efficiency of processes, and the confirmation of the quality requirements statement<br>2.3 Determine the testing methods to be used to implement the testing types defined for the identified test cycles<br>2.4 Determine the testing technique to be used to determine test cases, and analyse results<br>2.5 Perform the test cycle until a combination is found that provides an acceptable balance of cost, quality and risk, and on which upper management and development team can agree<br>2.6 Select test-support software to enable efficiency in testing and testing management<br>2.7 Define implementation details for agreed testing and the team responsible for testing management<br>2.8 Define reporting details for testing throughout the product life cycle to enable ongoing management of the testing process<br>2.9 Confirm test plan completeness using available completeness techniques<br>2.10 Confirm the test plan with development team and management |
| 3. Install and configure test plan defined test support software | 3.1 Install and configure the bug tracking process, and define bug description fields to maximise efficiency, and minimise possibilities of bouncing bugs<br>3.2 Install and configure test case management software<br>3.3 Install and configure test cycle management and reporting software<br>3.4 Install and configure automated test tools |
| 4. Manage testing process to enable defined quality requirements | 4.1 Manage and report on the development of test cases<br>4.2 Manage and report on test cycle status<br>4.3 Manage and report on outstanding bug status<br>4.4 Manage and report on the status of product testing related to product release, enabling a quality requirements statement |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.5 Update the test plan and schedule to deal with changing development conditions, and to ensure that management is informed<br>4.6 Manage bugs to ensure efficient bug handling and resolution<br>4.7 Manage the test environment, including setup, receipt of test builds and clean-up |
| 5. Finalise testing for release | 5.1 Produce testing results for management review prior to release<br>5.2 Manage test product freeze for final release and final test run<br>5.3 Confirm the product, release enabling, and ensure that quality requirements have been met |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2, 2.4 | • Interprets analyses and comprehends product expectations, and conceptual information to inform job requirements |
| Writing | 1.3, 2.7, 2.8, 2.9, 2.10, 3.1, 4.1, 4.2, 4.3, 4.4, 4.5, 5.1 | • Prepares technical documentation and reports for specific audiences, using clear and detailed language, and numerical data, in order to convey explicit information and requirements |
| Oral Communication | 1.4, 2.7, 2.8, 2.9, 2.10, 4.1, 4.2, 4.3, 4.4, 4.5, 5.3 | • Elicits information using effective listening and open questioning techniques<br>• Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information |
| Numeracy | 2.5 | • Interprets budgetary information to enable decision-making during the product test-cycle |
| Get the work done | 1.1-1.4, 2.1-2.10, 3.1-3.4, 4.1, 4.2, 4.3, 4.4, 4.6, 4.7, 5.2, 5.3 | • Plans, organises and completes work according to defined requirements and schedules, sequencing tasks to achieve efficient outcomes<br>• Makes critical decisions systematically in complex situations, taking into consideration a range of variables, including the outcomes of previous decisions |


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| | | |
|---|---|---|
| | | • Evaluates effectiveness of products to inform strategic decisions |

## Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM511 Manage testing of games and interactive media | ICAGAM511A Manage testing of games and interactive media | Updated to meet Standards for Training Packages | Equivalent unit |

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM511 Manage testing of games and interactive media

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- define quality requirements and an associated test plan for software
- install and configure testing support software
- manage the testing process
- identify bugs or issues, accurately and concisely
- finalise the software testing process to enable the product release.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide a detailed summary of client requirements for platforms, hardware and software
- provide a detailed explanation of client system requirements, both functional and non-functional
- outline the procedures for bug or issue management and identification
- summarise test reporting requirements
- explain testing techniques, methods, test types and system dissection.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- a system undergoing development with the associated specifications
- client requirements (verbal or written) for system quality requirements


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- testing support software
- a test environment.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM512 Create and implement designs for a 3-D games environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create and implement designs within the context of a 3-D games environment.

It applies to individuals with highly developed communication and technical skills working as concept artists, game designers, games programmers, animators, and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the technologies to be used with 3-D games development | 1.1 Discuss and decide on 3-D modelling software for the production of designs, and ramifications of choice with the relevant personnel<br>1.2 Discuss and decide on 2-D image-editing software for textures with relevant personnel<br>1.3 Establish 3-D production considerations for available computer |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | hardware |
| 2. Develop design documentation for 3-D effects | 2.1 Establish a theme for design, and determine the required modelling assets<br>2.2 Create a file archiving system for the storage of 3-D components, models and versions<br>2.3 Establish the project development pipeline and production deadlines, to meet assessment dates |
| 3. Develop and create storyboards | 3.1 Create a storyline for animation<br>3.2 Develop storyboard that implements the storyline document<br>3.3 Review and finalise the storyboard document for implementation |
| 4. Develop and create projects | 4.1 Create a new document and conduct the creation of models as outlined in the production pipeline, theme, and storyboard documents<br>4.2 Archive the project as specified by the assignment criteria for submission |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.2, 3.3, 4.1, 4.2 | • Interprets analyses and comprehends conceptual information to inform job requirements |
| Writing | 2.2, 3.1-3.3, 4.1 | • Transforms creative ideas into readily-understood information for specific audiences, using clear and detailed language<br>• Develops material regarding the advantages, and limitations of, different technologies using explicit language to convey information and requirements |
| Oral Communication | 1.1, 1.2 | • Elicits information using effective listening and open questioning techniques<br>• Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information |


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| | | |
|---|---|---|
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.3, 4.1, 4.2 | • Actively sources, analyses, and evaluates applications with the potential to meet 3-D game design requirements<br>• Uses key features, of specific digital systems and tools to complete design tasks<br>• Understands the importance of file structure, and takes responsibility for data integrity and management<br>• Uses creativity and initiative in 3-D game design<br>• Plans, organises and completes work according to defined requirements and schedules taking responsibility for decisions, and sequencing tasks to achieve efficient outcomes<br>• Uses a systematic process to evaluate work and implement improvements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM512 Create and implement designs for a 3-D games environment | ICAGAM512A Create and implement designs for a 3-D games environment | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of the performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM512 Create and implement designs for a 3-D games environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use discussion to identify the most appropriate technology for 3-D games development
- create and develop design documents for 3-D effects, including timelines for completion and file archiving system
- develop and use a storyline and storyboard to produce a 3-D games project.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the concepts of animation techniques
- explain the concepts of digital effects generation
- discuss and evaluate 2-D and 3-D graphics editing software and their common concepts
- provide a detailed summary of appropriate graphics formats for 3-D games.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM514 Design and create models for a 3-D and digital effects environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and create models for a 3-D and digital effects environment using complex topology, specified geometry surfaces, and advanced model builds.

It applies to individuals with high-level mathematical, technical and communication skills working as concept artists, game designers, games programmers, animators, and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Design and plan a 3-D model | 1.1 Research and collect a portfolio of reference material<br>1.2 Present the portfolio of collected reference material<br>1.3 Use reference material to develop and design a modelling plan |
| 2. Use suitable geometry | 2.1 Research the different types of geometry to select the most |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| surface for models | suitable for a 3-D model<br>2.2 Clearly document the selected geometry choice<br>2.3 Explain, justify and demonstrate the reasons for the selected geometry choice<br>2.4 Apply the selected geometry choice to 3-D model<br>2.5 Make changes to the geometry selection where necessary |
| 3. Analyse the resource material to construct and apply a suitable topology | 3.1 Construct and test a topology plan using chosen concept development software<br>3.2 Explain or demonstrate the reason for choosing a particular modelling method<br>3.3 Assess and refine the topology plan with the client and relevant personnel |
| 4. Construct a 3-D model | 4.1 Use a modelling plan to construct the model, in the chosen 3-D modelling and animation software<br>4.2 Build the model, according to specifications<br>4.3 Present the near-finished product to the relevant personnel<br>4.4 Accept feedback to incorporate into the final design<br>4.5 Assess and refine the model with clients and the relevant personnel<br>4.6 Compose a report on the experience of working on a 3-D model |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 4.1, 4.2 | • Interprets, analyses, and comprehends conceptual and specification information to inform job requirements<br>• Organises, evaluates and critiques ideas and information, from a range of complex texts, to determine which geometry and topology will best suit the 3-D model |


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| | | |
|---|---|---|
| Writing | 1.2, 1.3, 2.2, 2.3, 3.2, 3.3, 4.4, 4.5, 4.6 | • Transforms creative ideas into readily-understood information for specific audiences<br>• Develops material about the advantages and limitations of different technologies, using clear language to convey information and requirements |
| Oral Communication | 1.2, 2.3, 3.2, 3.3, 4.4, 4.5 | • Elicits information using effective listening and open-questioning techniques<br>• Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information |
| Numeracy | 2.2, 2.4, 2.5, 3.1, 4.1, 4.2, 4.4 | • Develops mathematical representations of any three-dimensional surface of objects using whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading and other 3-D modelling elements<br>• Interprets numerical data in order to decipher technical charts, diagrams, and other specifications |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Implements actions as per the plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of factors into account<br>• Uses feedback and evaluation of results to inform decisions about future improvement<br>• Utilises a broad range of features within digital applications for specific purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM514 Design and create models for a 3-D and digital effects environment | ICAGAM514A Design and create models for a 3-D and digital effects environment | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM514 Design and create models for a 3-D and digital effects environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and build a portfolio of reference material
- prepare a topology plan for a 3-D model design using:
  - appropriate industry terminology
  - appropriate geometry surfaces
  - concept development software
  - feedback from others to refine the plan
- use software to construct an advanced 3-D model according to plan, and use feedback from others to refine the model.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline methods of sourcing reference material

summarise the key aspects of a modelling plan

- discuss geometry surfaces, including:
  - NURBS
  - Sub-D
  - Polygon
  - T-splines
- explain the digital model development process
- explain the technology requirements and human resources required to create 3-D models, and their respective skills


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- explain box, edge-loop and patch modelling
- summarise the capabilities and constraints of 3-D modelling packages
- outline why it is important to schedule each production component
- explain features of topology plans
- discuss the uses of storyboards and scripts.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and create, advanced simulated effects in a 3-D and digital effects environment.

It applies to individuals with high-level mathematical, technical and communication skills working as concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse approaches to design requirements | 1.1 Analyse the design requirements for particle systems, fluids and bodies outlined in the brief and organisational documents<br>1.2 Identify where the advanced simulated effects will fit into the production pipeline<br>1.3 Identify the factors that may influence the design approach to creating advanced simulated effects |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Demonstrate the application of advanced simulated effects | 2.1 Review the media and techniques that may inspire ideas for simulated effects<br>2.2 Respond to the brief and documents, and provide solutions to the creation of advanced simulated effects for 3-D environments<br>2.3 Present design ideas and design considerations, with justification of the choice of advanced simulated effects to the relevant personnel |
| 3. Plan approach to simulated effects | 3.1 Adapt and finalise the design according to feedback from the relevant personnel<br>3.2 Identify skills and processes required for creating advanced simulated effects systems<br>3.3 Source and gather reference materials, and maintain a portfolio of these references<br>3.4 Plan a time line to create the advanced simulated effects |
| 4. Produce particles, fluids and bodies for review | 4.1 Use programming languages to create code to assist, or produce, the advanced simulated effects<br>4.2 Using toolsets, create prototype of advanced simulated effects based on finalised design<br>4.3 Implement physics and forces to the advanced simulated effects, to produce the desired outcome<br>4.4 Conduct testing<br>4.5 Review the results, and present the created effects, to the relevant personnel for feedback and discussion about the implementation of the effects, in accordance to the requirements of the design |
| 5. Finalise advanced simulated effects | 5.1 Adapt the advanced simulated effects and design if necessary, according to feedback<br>5.2 Refine the advanced simulated effects<br>5.3 Present the finalised advanced simulation effects in the requested form, including the pre-production portfolio, demonstrating project research and development for evaluation, and review, by the relevant personnel |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.2 | • Interprets, analyses and comprehends briefs, documents, and conceptual information, to inform job requirements |
| Writing | 2.3, 3.1, 4.1, 4.5, 5.1, 5.3 | • Develops readily understood design and instructional documentation<br>• Transforms creative ideas into documents for specific audiences |
| Oral Communication | 2.3, 3.1, 4.5, 5.1, 5.3 | • Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information<br>• Elicits information using effective listening and open-questioning techniques<br>• Provides practical advice, support and feedback to colleagues and management |
| Numeracy | 2.2, 3.1, 4.3 | • Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading, and other elements of radical 3-D effects |
| Get the work done | All | • Takes responsibility for own workload, negotiating some key aspects with others<br>• Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options, against the agreed criteria<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues, and using lateral thinking processes to generate possible solutions<br>• Develops and shapes several options before making a final choice, using a combination of lateral and analytical thinking to tailor and strengthen ideas to suit needs, resources and constraints |


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| | | |
|---|---|---|
| | | • Recognises the value of continuous improvement within own work context<br>• Utilises a broad range of features within applications to improve personal productivity, optimising software functions for specific purposes<br>• Manages and maintains files securely, in a variety of storage media and formats, and is beginning to actively establish, maintain and monitor electronic paper trails |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects | ICAGAM515A Design and create advanced particles, fluids and bodies for 3-D digital effects | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse design requirements and develop design documents
- develop advanced simulation effects according to requirements
- use appropriate effects, such as particles, fluids and rigid or soft bodies
- use programming languages to assist the creation of advanced simulation effects
- adapt design according to feedback
- produce a refined and finalised deliverable
- maintain a portfolio of reference materials.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the programming techniques required for creation of 3-D digital effects
- discuss computer game development, including specific terminology
- summarise the current game-play hardware and software products
- summarise the technology requirements and human resources required in the process of creating digital effects and each team member’s respective skills
- explain risk and critical path management
- provide a detailed summary of the technical constraints that hardware imposes on:
  - software development
  - graphics requirements
  - code development
  - creative visual design
- explain the techniques for applying concept development skills


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- explain the techniques for applying concept visualisation skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM516 Animate a 3-D character for digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply animation principles to develop an animated character, and export the character model into a game.

It applies to individuals with high-level mathematical, technical and communication skills working as concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine a 3-D character model for animation requirements | 1.1 Study the production documentation animation requirements for 3-D character<br>1.2 Determine the target environments for a 3-D digital character animation<br>1.3 Establish the required level of detail for a 3-D character model animation<br>1.4 Determine work-flow sequences, to ensure that production |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | schedule deadlines are met<br>1.5 Select the software tools that best suit the production pipeline and the target game engine, and platform, for the final export of a 3-D digital character modelling, and animations |
| 2. Create the required animations, using a variety of animated tools | 2.1 Determine the most efficient animation methodology<br>2.2 Animate first pass, applying animation principles and experimenting with techniques to produce the required movements<br>2.3 Submit first pass for approval to the relevant personnel<br>2.4 Make adjustments, as required, and refine animation in passes until storyboard requirements are achieved<br>2.5 Animate facial features with lip-syncing to match the audio and design requirements of the approved storyboard<br>2.6 Create primary animations, as required |
| 3. Finalise the animations | 3.1 Submit character animations for the final check to relevant personnel<br>3.2 Finalise projects according to the production procedure |
| 4. Export the animations | 4.1 Export the animation and 3-D character model to the required game engine<br>4.2 Test the character animations in the game engine<br>4.3 Submit the final character animations to the relevant personnel |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.5, 3.2 | • Interprets, analyses and comprehends workplace documentation and images, to aid implementation of job requirements |
| Writing | 1.3, 1.4 | • Creates documents for specific personnel, incorporating complex design information according to industry standards and required formats |
| Oral | 1.3, 1.4, 4.3 | • Elicits information using effective listening and open questioning techniques |


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| | | |
|---|---|---|
| Communication | | • Provides practical advice, support and feedback to colleagues and management, converting highly technical language and terminology to plain English |
| Numeracy | 2.2, 2.4, 2.5, 2.6 | • Applies numerical skills to develop applications using whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading, and other 3-D elements |
| Interact with others | 2.3, 3.1, 4.3 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers, in a range of work contexts<br>• Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships<br>• Elicits feedback and provides feedback to others to improve self or workgroup behaviours |
| Get the Work Done | 1.2-1.5, 2.1-2.6, 3.2, 4.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Monitors the progress of plans and schedules, and reviews, and changes these in order to meet new demands and priorities<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables, including the outcomes of previous decisions<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes<br>• Uses, and investigates, new digital technologies and applications to manage and manipulate data, and communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM516 Animate a 3-D character for digital | ICAGAM516A Animate a 3-D character for digital | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| games | games | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM516 Animate a 3-D character for digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select the correct tools to work with the target game engine and platform
- apply animation principles
- develop an animated character model
- export the animated character model to the game engine
- test character animations in the game engine.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain 3-D animation principles, including the relevance of anatomy and physical movement
- summarise the capabilities and constraints of game engines
- summarise attributes of current game-play hardware and software products
- explain the function of a graph curve editor
- discuss risk and critical path management
- explain shading, texturing, weight and anticipation
- discuss transfer methodology, including rotoscope, hand key and motion capture
- provide a detailed summary of techniques for applying concept development skills
- summarise techniques for applying concept visualisation skills
- summarise techniques for using storyboard and script production
- discuss the technology requirements and human resources required in the process of creating games, and the team's skills
- outline the importance of communication with a client when working on projects


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- outline budgeting and scheduling considerations for game design
- explain the importance of time management in the development of a project.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM517 Produce a digital animation sequence

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to produce a digital animation sequence for the 3-D and digital effects environment, involving the completion of a digital editing project.

It applies to individuals with high-level mathematical, technical and communication skills working as concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop or source story or concept | 1.1 Research ideas for the animation sequence<br>1.2 Produce treatment of an animation sequence |
| 2. Develop plan and determine components required for the animation | 2.1 Produce and work according to the production plan<br>2.2 Develop a storyboard detailing the 3-D animation<br>2.3 Create concept drawings for 3-D models |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| sequence | 2.4 Show evidence of the reference material used for storyboard and concept drawings |
| 3. Produce the animation sequence using 3-D software | 3.1 Use the production plan to create the animation<br>3.2 Select appropriate frames per second to use for the animation<br>3.3 Use references to create assets<br>3.4 Create a 3-D animation project using 3-D modelling and animation software<br>3.5 Animate components of the 3-D environment to reflect the planned animation sequence<br>3.6 Using 3-D modelling and animation software, produce high-end lighting techniques |
| 4. Render and finalise the 3-D animation sequence | 4.1 Select the appropriate resolution and aspect ratio<br>4.2 Employ 3-D modelling software to render the animated sequence<br>4.3 Review the rendered frames against the initial storyboard concept |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.1, 3.3, 4.3 | • Interprets, analyses and comprehends workplace documentation and images to inform job requirements |
| Writing | 1.2, 2.2, 2.3 | • Creates documents incorporating complex design information and ideas according to industry standards and required formats |
| Numeracy | 3.2, 3.3, 3.5, 3.6, 4.1 | • Applies numerical skills to develop sequences using whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading, and other 3-D elements |
| Get the work done | All | • Takes responsibility for planning, organising and implementing tasks required to achieve outcomes<br>• Implements actions as per plan, making slight adjustments, if necessary, and addressing some |


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| | | |
|---|---|---|
| | | unexpected issues<br>• Makes a range of critical and non-critical decisions in relatively complex situations, analysing information and taking a range of factors into account<br>• Understands and applies some of the basic principles of analytical and lateral thinking<br>• Utilises a broad range of features within 3-D software applications to improve personal productivity, optimising software functions for specific purposes<br>• Manages and maintains files securely, in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM517 Produce a digital animation sequence | ICAGAM517A Produce a digital animation sequence | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM517 Produce a digital animation sequence

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- show the reference material used for concepts and storyboards
- develop storyboards and concept drawings for 3-D animation and models according to plans
- apply a variety of strategies to create an animation sequence using a 3-D environment
- develop a finalised frame of the animation in an appropriate resolution.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise digital editing processes and techniques
- summarise rendering processes and techniques
- outline the capabilities of digital editing and rendering software
- discuss the technology requirements and human resources required to create games, including team member's skills
- discuss the technical constraints that hardware imposes on:
  - graphics requirements
  - code development
  - creative visual design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:


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- computer hardware and software
- games engines
- file storage
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM518 Animate physical attributes of models and elements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to animate the appropriate physical attributes of models and elements.

It applies to individuals with high-level mathematical, technical and communication skills working as concept artists, game designers, games programmers, animators, and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Collect and use reference material | 1.1 Create the storyboard sequence of required animation<br>1.2 Determine the animation attribute sequence of objects, as per the storyboard<br>1.3 Select the 3-D modelling and animation software tools that best suit the type of production, and target platform, for which 3-D digital animations are being created<br>1.4 Research and gather the reference material to inform the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | animation |
| 2. Prepare 3-D digital models using a variety of manipulating techniques | 2.1 Determine the most efficient animation methodology from the required models<br>2.2 Ensure that the models' topology allows the appropriate deformation of objects and their parts, as per the storyboard animation brief<br>2.3 Apply a variety of manipulation techniques<br>2.4 Progressively refine animation attributes and check the integrity of models and elements over time, until the storyboard requirements are met<br>2.5 Submit the pre-model animation to the relevant personnel to determine whether storyboard objectives have been met, then make final adjustments as required |
| 3. Create the required animations using a variety of animated tools | 3.1 Animate the object, applying animation principles and techniques to produce the required motions<br>3.2 Submit the animation for approval<br>3.3 Make adjustments as required and refine the animation in passes until the storyboard requirements are achieved |
| 4. Use lighting to evaluate texture, quality and performance | 4.1 Use nominal lighting to render the component for testing purposes<br>4.2 Test against the plan<br>4.3 Continue the manipulation process until the effect is achieved |
| 5. Render 3-D digital model using appropriate render engine | 5.1 Evaluate the final render, taking steps to satisfy any further client requirements<br>5.2 Prepare any required render passes<br>5.3 Render the component<br>5.4 Present the edited material to the relevant personnel, as well as the brief and documents, including concept art, in an appropriate format for evaluation |
| 6. Back up work | 6.1 Make backup copies of files, and complete workplace documentation, according to chosen predetermined procedures |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.4, 2.4, | • Interprets and analyses reference sources |
| Writing | 1.1, 5.4, 6.1 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose and audience, when creating storyboard and workplace documentation |
| Numeracy | 2.3, 2.5, 3.1, 3.3 | • Uses mathematical and problem-solving strategies when applying manipulation techniques, animating objects and making adjustments |
| Interact with others | 2.5, 3.2, 5.4 | • Understands what to communicate, with whom and how, when submitting work for evaluation and approval |
| Get the work done | All | • Plans a range of routine and non-routine tasks, including collecting resources, determining storyboard sequences, and selecting software tools<br>• Implements actions as per plans, making slight adjustments if necessary, and addressing some unexpected issues<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of factors into account<br>• Utilises a broad range of features of software applications for specific purposes<br>• Manages and maintains the files securely in a variety of storage media and formats |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM518 Animate physical attributes of models and elements | ICAGAM518A Animate physical attributes of models and elements | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM518 Animate physical attributes of models and elements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and collate reference materials
- create a storyboard sequence and use the storyboard to prepare pre-model animation for approval
- use animation and rendering software to create animations, according to animation principles and storyboard requirements
- present a final 3-D digital model, together with supporting documentation, for approval
- store files according to procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the principles of 3-D animation, lighting and modelling
- describe how knowledge of anatomy and physical movement is relevant to animation
- describe the importance of client communication when working on projects
- explain the importance of budgeting and scheduling considerations during projects
- outline the techniques for creating a storyboard
- outline techniques for script production
- describe the application of current game-play hardware and software products
- provide a detailed explanation of the purpose of dope sheets
- describe the principles of the graph curve editor for smooth animation
- outline the physical attributes to create effects, including weight and anticipation
- explain the purpose of rendering
- explain shading and texturing techniques


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- provide a detailed summary of transfer methodology, including rotoscoping hand key and motion capture.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM519 Manage technical art and rigging in 3-D animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, implement, and manage 3-D animation rigs for objects using structural controls, and construct hierarchies to formulate object geometry, and skeletal rigs to a defined project brief.

It applies to individuals with high-level mathematical, technical and communication skills working as concept artists, game designers, games programmers, animators, and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Use reference or source materials to assess rig requirements | 1.1 Use organisational procedures and production documentation to determine model rigging requirements<br>1.2 Maintain a portfolio of reference materials<br>1.3 Determine the range of software features available, when using various rigging technologies |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Plan rig suitable for animation/movement | 2.1 Analyse the inner workings of the object to select appropriate skeletal or structural systems<br>2.2 Analyse required bones or joints behaviours to select correct orientations<br>2.3 Examine object geometry topologies to select the correct bone and joint placement<br>2.4 Analyse critical object movement to select forward kinematics (FK) or Inverse Kinematics (IK) requirements, or a hybrid solution<br>2.5 Record the results for use at the rigging implementation phase |
| 3. Implement character skeleton requirements | 3.1 Use 3-D software to place the bones and joints, according to rigging plan<br>3.2 Use 3-D software to orientate the bones and joints, according to rigging plan<br>3.3 Use 3-D software to construct FK or IK requirements in adherence to the rigging plan<br>3.4 Use 3-D software to construct hierarchies and pivotal sets<br>3.5 Trial and refine rotations and movement attributes |
| 4. Employ character movement and implement character attributes and control handles | 4.1 Use 3-D software to construct specific driven attributes for manipulation purposes<br>4.2 Use 3-D software to create, and place, control handles with the appropriate attributes<br>4.3 Use 3-D software to link control handles to improve the animation procedures<br>4.4 Trial and refine the controls, and attributes<br>4.5 Negotiate modifications, where appropriate<br>4.6 Use 3-D software toolsets to skin/bind object geometry, to created skeletal systems or mechanical structures |
| 5. Test and refine rig integrity | 5.1 Use 3-D software to test and refine, object rig interaction<br>5.2 Use 3-D software toolsets to test and refine, geometry skeleton systems or mechanical structure interaction<br>5.3 Negotiate modifications, where appropriate |
| 6. Produce animated sequences of rigged object | 6.1 Create 3-D animations of rigged models using animation and rigged modelling techniques, to suit design specifications<br>6.2 Render the completed animated sequences<br>6.3 Save and store the animated sequences, using appropriate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | output file formats, standard naming conventions, and version-control protocols<br>6.4 Present the 3-D animated sequences of rigged models to the relevant personnel for evaluation by agreed deadlines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1, 3.2, 3.3, 6.1, 6.3 | • Interprets, analyses and comprehends briefs, documents and conceptual information to inform job requirements |
| Writing | 2.5, 4.5, 5.3, 6.3 | • Develops readily-understood conceptual and instructional documentation, using programming language<br>• Transforms creative ideas for specific audiences, using clear and detailed language |
| Oral Communication | 1.3, 4.5, 5.3 | • Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information<br>• Elicits information using effective listening and open questioning techniques |
| Numeracy | 4.6, 5.1, 5.2 | • Undertakes geometric calculations to deduce measurements, relationships between points, lines, angles and figures in space by using assumed properties of space |
| Interact with others | 4.5, 5.3, 6.4 | • Recognises and applies the protocols governing what to communicate, with whom and how, when presenting work for evaluation, and negotiating modifications |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Implements actions as per the plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Makes a range of critical and non- critical decisions in relatively complex situations, taking a range of factors |


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| | | |
|---|---|---|
| | | into account when planning, testing and refining rigs<br>• Utilises a broad range of features within applications to improve personal productivity, optimising software functions for specific purposes<br>• Manages and maintains files securely in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM519 Manage technical art and rigging in 3-D animation | ICAGAM519A Manage technical art and rigging in 3-D animation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM519 Manage technical art and rigging in 3-D animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, implement and manage rigs for objects according to production documentation and organisational procedures
- use and refine skeleton/structural and animation controls for best performance
- construct hierarchies to formulate specific controls
- combine and refine object geometry to skeletal/structural rigs
- create 3-D digital animated sequences of a rigged model
- meet production deadlines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise basic 3-D digital animation techniques
- explain the features of a range of delivery platforms
- describe the skills required for geometry topology analysis
- explain how to identify appropriate physical attributes to animate
- explain rigged 3-D modelling techniques
- discuss the theory of anatomy and structural systems and how they relate to 3-D animation techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:


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- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM520 Create and combine 3-D digital games and components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create compound models using recognised industry software suitable to the animation production process, according to a defined set of parameters.

It applies to individuals with high-level technical and analytical skills working as modellers or artists, in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine model creation requirements | 1.1 Analyse and follow the design requirements, production documentation and organisational guidelines<br>1.2 Select the 3-D modelling software tools that best suit the type of production for which 3-D digital models are being created |
| 2. Create 3-D digital models using a variety of | 2.1 Determine the most efficient modelling methodology |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| modelling techniques | 2.2 Apply a variety of modelling techniques<br>2.3 Create the 3-D digital models<br>2.4 Progressively refine and check the integrity of the models |
| 3. Combine 3-D models to create a scene | 3.1 Combine the 3-D models to create a scene, based on the design requirements<br>3.2 Submit the models to the relevant personnel for comment, to determine whether the production requirements have been met, and make final adjustments, if required |
| 4. Render 3-D digital models using appropriate render engine | 4.1 Test the rendering scene and adjust the settings<br>4.2 Render the final 3-D scene<br>4.3 Submit the final model renders to the relevant personnel |
| 5. Back up work | 5.1 Make backup copies of the files<br>5.2 Complete the workplace documentation, according to predetermined procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1, 5.2 | • Interprets, analyses and comprehends briefs, documents and conceptual information<br>• Analyses texts and images to inform the implementation of specifications |
| Writing | 5.2 | • Develops readily understood administrative documentation, using detailed and workplace-specific language |
| Oral Communication | 3.2, 4.3 | • Speaks clearly and concisely, converting technical language and terminology to plain English, when providing information<br>• Elicits information using effective listening and open questioning techniques<br>• Provides practical advice, support and feedback, to colleagues and management |


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| | | |
|---|---|---|
| Numeracy | 2.4, 3.2, 4.1 | • Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading, and other elements of 3-D animation |
| Get the work done | All | • Takes responsibility for planning and organising tasks required to efficiently meet required outcomes<br>• Implements actions as per the plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of factors into account<br>• Understands and explicitly applies, some basic principles of analytical and lateral thinking when creating a concept<br>• Utilises a broad range of features within 3-D software applications for specific purposes<br>• Manages and maintains files in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM520 Create and combine 3-D digital games and components | ICAGAM520A Create and combine 3-D digital games and components | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM520 Create and combine 3-D digital games and components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create 3-D models according to design, production and organisational requirements
- combine 3-D models to build a scene that meets design requirements
- produce, circulate and store the final render of the scene.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide a basic summary of 3-D software interfaces
- summarise the capabilities and constraints of game engines
- outline current game-play hardware and software products
- discuss the process of computer game development
- discuss the application of the anatomy, and physical movement, to 3-D components
- describe the graph curve editor and its application to animation
- explain the physical attributes required to create effects, such as weight and anticipation
- summarise risk and critical path management
- discuss the importance of shading and texturing as a requirement of 3-D games components
- explain the techniques for applying concept-development skills
- explain the techniques for applying concept-visualisation skills
- explain transfer methodology including rotoscope, hand key and motion capture
- outline the technology requirements and human resources required in the process of creating a game, including team members' skills
- outline the budgeting and scheduling considerations for game design.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM521 Create interactive 3-D environments for digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to coordinate the design and technical elements of a smooth-running interactive 3-D environment.

It applies to individuals with excellent organisational skills and high-level technical expertise working as concept artists, game designers, games programmers, animators, and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Obtain the design documents for the 3-D environment | 1.1 Conceptualise the design requirements, based on the project brief and other relevant documents<br>1.2 Identify the requirements for the design of the 3-D environment<br>1.3 Determine the design considerations, and generate the concept art for the final environment design |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Ensure that any missing requirements are considered and included in the design |
| 2. Identify software tools that can be used to create 3-D environments | 2.1 Identify the texturing tools, including painting, shading and texturing software<br>2.2 Identify the audio tools<br>2.3 Identify the 3-D modelling and animation software to be used |
| 3. Document and justify the design decisions | 3.1 Clearly document the design decisions<br>3.2 Explain and justify the design decisions<br>3.3 Make changes, where necessary |
| 4. Create the 3-D environment | 4.1 Implement basic geometry, flow and layout<br>4.2 Separate each section of the environment into key parts and choose a focal point for the environment<br>4.3 Incorporate detail into the focal point of the level<br>4.4 Use the focal points to set a reference for the rest of the environment<br>4.5 Integrate the geometry, texturing, and place the models<br>4.6 Carry out a detailed pass of the entire environment<br>4.7 Set up the exterior lighting and then the interior lighting<br>4.8 Incorporate any sound and particle effects, and perform optimisation, if required<br>4.9 Perform a final pass, finalising any elements |
| 5. Present the finished 3-D environment to relevant personnel | 5.1 Present the finished 3-D environment to the relevant personnel<br>5.2 Report how the design decisions have met the 3-D environment design requirements<br>5.3 Justify why certain design decisions were made<br>5.4 Accept peer feedback and incorporate in the final design |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1, 1.2 | • Interprets analyses and comprehends briefs, documents and conceptual information to inform job requirements |
| Writing | 1.1, 1.3, 1.4, 3.1, 3.2, 3.3, 5.2, 5.3 | • Develops readily-understood conceptual documentation using technically appropriate language<br>• Transforms creative ideas for specific audiences using clear and detailed language to justify choices that have been made |
| Oral Communication | 1.2, 1.3, 3.2, 5.1, 5.2, 5.3, 5.4 | • Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information<br>• Elicits information using effective listening and open questioning techniques |
| Numeracy | 4.1, 4.5 | • Undertakes geometric calculations to deduce measurements, relationships between points, lines, angles and figures in space by using assumed properties of space |
| Interact with others | 5.1, 5.2, 5.3 | • Recognises and applies the protocols governing what to communicate, with whom and how when presenting work to others for feedback |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9 | • Takes responsibility for planning, organising and implementing tasks required to achieve outcomes<br>• Implements actions as per the plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Makes a range of critical and non- critical decisions in relatively complex situations, taking a range of factors into account<br>• Understands and applies some basic principles of analytical and lateral thinking<br>• Utilises a broad range of features within 3-D software applications for specific purposes<br>• Manages and maintains files in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM521 Create interactive 3-D | ICAGAM521A Create interactive | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| environments for digital games | 3-D environments for digital games | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM521 Create interactive 3-D environments for digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- interpret design requirements, produce concept art accompanied by documentation that justifies and explains design decisions
- implement design requirements into a working 3-D environment
- create working interactions between the user and the environment
- deliver a finished 3-D environment and report on design decisions to others.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the budgeting and scheduling considerations for game design
- discuss the process used to develop computer games
- outline the technology requirements and human resources required to create games, including the team's respective skills
- explain current game-play hardware and software products, including any constraints that product impose on graphics and code development and creative visual design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM522 Complete digital editing for the 3-D and digital effects environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to edit a sequence in a 3-D environment, and finalise the edit in an appropriate video format.

It applies to individuals with high-level technical and communication skills working as concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research the digital editing techniques and software | 1.1 Research industry-standard digital editing techniques<br>1.2 Determine the suitable techniques to apply in various scenarios<br>1.3 Research the available digital editing software used in the industry<br>1.4 Identify the technical limitations, and constraints, of rendering |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and editing processes |
| 2. Obtain or create the 3-D animation sequence | 2.1 Obtain or create a 3-D animation sequence in frames<br>2.2 Obtain or create a storyboard for the sequence<br>2.3 Use a suitable naming scheme for the rendered frames, and organise the files into a folder structure |
| 3. Apply digital editing techniques | 3.1 Edit the rendered frames, and any additional graphics, into the sequence outlined in the storyboard<br>3.2 Apply program functions to create and insert graphics, transitions and special effects into the animation<br>3.3 Implement sounds and music at the appropriate frame locations<br>3.4 Ensure that efficient file management is maintained during the editing process |
| 4. Finalise a digitally edited production | 4.1 Use editing software to resolve any sound or transition errors<br>4.2 Evaluate the final edit<br>4.3 Present the finalised edit to the relevant personnel, in an appropriate video format<br>4.4 Receive and incorporate the feedback |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.1 | • Interprets analyses and comprehends briefs, documents and conceptual information, to inform job requirements |
| Writing | 2.2, 2.3, 4.4 | • Develops readily-understood games, technical design and instructional documentation, using programming or industry-specific language<br>• Transforms creative ideas for specific audiences, using clear and detailed language |
| Oral Communication | 1.2, 4.3, 4.4 | • Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information |


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| | | |
|---|---|---|
| | | • Elicits information using effective listening and open questioning techniques<br>• Provides practical advice, support, and feedback to colleagues and management |
| Numeracy | 2.1, 3.1 | • Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading and other elements of a 3-D environment |
| Interact with others | 4.3, 4.4 | • Recognises and applies the protocols governing what to communicate, with whom and how, when presenting work to others for feedback |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4 | • Takes responsibility for planning, organising and implementing tasks required to achieve required outcomes<br>• Implements actions as per the plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Makes a range of critical and non-critical decisions in relatively complex situations<br>• Uses analytical processes to decide on a course of action, establishing criteria for evaluating options, and taking a range of factors into account<br>• Utilises a broad range of features within editing software applications for specific purposes<br>• Manages and maintains files in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM522 Complete digital editing for the 3-D and digital effects environment | ICAGAM522A Complete digital editing for the 3-D and digital effects environment | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM522 Complete digital editing for the 3-D and digital effects environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use research to identify and select digital editing techniques and software
- edit a 3-D sequence by inserting graphics, special effects, sounds and music according to a storyboard, and store all files efficiently
- use editing software, and feedback from others, to develop a final version in an appropriate video format.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain digital editing and rendering processes and techniques
- discuss the capabilities, and constraints, of digital editing and rendering software
- summarise the technical constraints that hardware imposes on:
  - software development
  - graphics requirements
  - code development
  - creative visual design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work and include access to:

- computer hardware and software


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- games engines
- file storage
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM523 Collaborate in the design of 3-D game levels and environments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan, and implement, the design of an interactive 3-D game in a team environment.

It applies to individuals with high-level technical and communication skills working as concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research and plan the design process | 1.1 Select a project planning methodology<br>1.2 Identify the design practices and design considerations in collaboration with other team members<br>1.3 Record the stages of the design process, using the project brief and documents |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Identify the team roles that relate to level creation and design<br>1.5 Plan and implement a design process using time-management principles |
| 2. Conceptualise a 3-D environment design in collaboration with team | 2.1 Identify the key level specifications, and purpose, for the 3-D environment<br>2.2 Gather and analyse reference materials in collaboration, to help with visualisation of 3-D environment, including environment profiles, game genre, game design and game-play elements<br>2.3 Catalogue the required objects of the level environment<br>2.4 Identify the appropriate 3-D modelling and animation software, and painting, shading and texturing software that can be used to create the 3-D environment<br>2.5 Document the design decisions that are made before, and during, the design conceptualisation<br>2.6 Produce the concept art of the designed environment |
| 3. Present the conceptualised environment to peers | 3.1 Present the conceptualised environment to peers and receive feedback<br>3.2 Report on how the design decisions have met the requirements for game-play elements<br>3.3 Justify why certain design decisions were made<br>3.4 Receive and consider peer feedback |
| 4. Refine the design | 4.1 Implement quality assurance principles<br>4.2 Incorporate user feedback to modify the design<br>4.3 Finalise the design decision documents in readiness for creating the 3-D environment |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2, 3.4 | • Interprets analyses and comprehends briefs, instructions, and conceptual information to inform job requirements |


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| | | |
|---|---|---|
| Writing | 1.2, 1.3, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 4.2, 4.3 | • Develops readily-understood technical, design and instructional documentation<br>• Documents the decision-making process for specific audiences, using clear and detailed language |
| Oral Communication | 1.2, 3.1, 3.2, 3.3, 3.4 | • Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information<br>• Elicits information using effective listening and open questioning techniques<br>• Provides information, support and feedback to colleagues and management |
| Interact with others | 1.2, 1.4, 2.2, 3.1 | • Recognises and applies the protocols governing what to communicate, with whom and how<br>• Cooperates and collaborates with others to achieve shared outcomes |
| Get the work done | 1.1-1.5, 2.1-2.6, 4.1-4.3 | • Takes responsibility for planning and organising tasks required to achieve required outcomes, including coordinating tasks with others<br>• Makes a range of critical and non-critical decisions in relatively complex situations, using analytical processes to evaluate and choose appropriate options<br>• Understands and explicitly applies some basic principles of analytical and lateral thinking<br>• Reflects on the ways in which digital systems and tools are used, or could be used, to achieve work goals for modelling and animation<br>• Manages and maintains files in a variety of storage media and formats |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM523 Collaborate in the design of 3-D game levels and environments | ICAGAM523A Collaborate in the design of 3-D game levels and environments | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

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# Assessment Requirements for ICTGAM523 Collaborate in the design of 3-D game levels and environments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- collaborate with others to plan and implement the design process for creating an interactive 3-D environment
- produce and present draft design documents for the production of an interactive 3-D environment, and gather feedback
- review and modify the designs to create a finalised design for a 3-D environment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the budgeting and scheduling considerations for game design
- discuss the capabilities and constraints of game engines
- discuss the process used for computer game development
- outline current game-play hardware and software products, together with any technical constraints that products impose on graphics and code development, and creative visual design
- explain the technology and human resources required in the process of creating a game, including the team’s respective skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software


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- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM524 Integrate multiple data sources into interactive 3-D environments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to integrate multiple data sources into interactive 3-D environments.

It applies to individuals with high-level technical and communication skills and may be applicable to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Catalogue elements to integrate into the interactive 3-D environment | 1.1 Research and identify data sources that can be integrated into interactive 3-D environments<br>1.2 Identify data sources that will be integrated to suit the environment, game design, game genre, game mechanics, game-play elements, and level specifications<br>1.3 Obtain or create data sources for the interactive 3-D |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | environment |
| 2. Identify tools that can be used to integrate assets | 2.1 Identify tools and libraries for integration of identified elements into the 3-D environment<br>2.2 Review and document how the tools work |
| 3. Integrate sources into the interactive 3-D environment | 3.1 Create prototypes and integrate the elements into the interactive 3-D environment using the identified tools<br>3.2 Test integration of the elements<br>3.3 Ensure that the elements' integrity during the implementation is maintained |
| 4. Present and evaluate completed 3-D environment with all data sources included | 4.1 Present the interactive 3-D environment to the appropriate personnel<br>4.2 Review the feedback from the presentation<br>4.3 Evaluate and justify the implementation, using tools for the data sources |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Interprets analyses and comprehends briefs, instructions and conceptual information to inform job requirements |
| Writing | 2.2, 4.1, 4.2, 4.3 | • Develops clear and detailed catalogue documentation<br>• Documents the decision-making process for specific audiences using clear and detailed language |
| Oral Communication | 4.1, 4.2, 4.3 | • Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information<br>• Elicits information using effective listening and open questioning techniques<br>• Provides practical advice, support and feedback to colleagues and management |
| Get the work | 1.1-1.3, 2.1, 2.2, | • Plans, organises and completes work according to defined requirements and schedules taking |


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| | | |
|---|---|---|
| done | 3.1-3.3, 4.1-4.3 | responsibility for decision, and sequencing tasks to achieve efficient outcomes<br>• Actively sources, analyses and evaluates data sources with the potential to meet 3D design requirements<br>• Uses creativity and initiative in 3D design<br>• Uses a systematic process to evaluate work and to implement improvements<br>• Uses key features of specific digital systems and tools to effectively complete design tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM524 Integrate multiple data sources into interactive 3-D environments | ICAGAM524A Integrate multiple data sources into interactive 3-D environments | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM524 Integrate multiple data sources into interactive 3-D environments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and obtain data sources, tools and libraries needed to integrate elements into an interactive 3-D environment
- create and test prototypes that integrate multiple data sources into a working interactive 3-D environment
- deliver a 3-D environment with working interactions that includes all data sources, with documented reasons for its implementation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the range of data sources for the 3-D environment
- discuss how game design, genre and mechanics, game-play elements and level specifications affect the choice of data source
- summarise current game-play hardware and software products used for interactive 3-D environments, including any technical constraints imposed on design and development
- describe the technology requirements and human resources required in the process of creating a game, including team members' respective skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software


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- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM525 Apply digital texturing for the 3-D environment in digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research, select techniques, and apply industry standard graphic software tools, to digital texturing for the 3-D environment in digital games.

It applies to individuals with high-level technical, interpretive and communication skills and may be applicable to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research common industry practices for texturing a 3-D environment | 1.1 Research, identify and describe the methods of texture creation and texture mapping<br>1.2 Choose a suitable graphics software to create textures<br>1.3 Document the design considerations for texturing a 3-D environment |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Create a basic 3-D environment | 2.1 Use 3-D modelling and animation software<br>2.2 Create simple 3-D objects<br>2.3 Place the objects in a 3-D environment<br>2.4 Apply inbuilt lighting effects to the 3-D environment |
| 3. Create multiple textures to apply to the 3-D environment | 3.1 Use graphics software<br>3.2 Apply industry-standard methods to create the textures<br>3.3 Create textures to establish the look, and the feel, of the 3-D environment |
| 4. Apply multiple texture effects to a 3-D environment | 4.1 Load the textures into the 3-D animation and modelling software<br>4.2 Apply the textures to colour the 3-D objects and environment<br>4.3 Use texture-mapping techniques to create multiple texture effects for a single 3-D object<br>4.4 Employ 3-D animation and modelling software to render an image of the 3-D environment |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Researches common industry practices to interpret technical design terminology<br>• Interprets and comprehends a large range of diagrams, icons, symbols, text, numbers and letters, necessary to use complex design software |
| Writing | 1.1, 1.3 | • Uses correct spelling and grammar, plain English, specific terminology and appropriate document layout when documenting methodologies and design considerations |
| Numeracy | 2.1, 2.2, 2.3 | • Uses whole numbers, decimals and percentages relevant to measurement, resolution aspect ratio, pixel ratio, scale, coordinates, colour, shading, and other attributes/variables in the application of digital effects |


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| | | |
|---|---|---|
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1-3.3, 4.1-4.4 | • Plans, organises and completes tasks according to defined requirements and schedules<br>• Makes decisions directly related to completion of required tasks<br>• Uses creativity and initiative to visualise concepts<br>• Actively sources, analyses and evaluates methodologies and software with the potential to meet 3-D texturing requirements<br>• Uses key features of specific digital systems and software to complete design and creation tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM525 Apply digital texturing for the 3-D environment in digital games | ICAGAM525A Apply digital texturing for the 3-D environment in digital games | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM525 Apply digital texturing for the 3-D environment in digital games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research, select and document suitable techniques and software to create texturing for a 3-D environment
- use modelling and animation software to create 3-D objects in a 3-D environment
- use graphics software to create multiple textures appropriate for a 3-D environment
- produce a final rendered image of a 3-D environment that incorporates multiple texture effects for a single 3-D object.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the technology and human resources required in the process of creating textures for the 3-D environment
- discuss the capabilities and constraints of graphics software for texturing
- provide a detailed summary of the methods of texture creation and texture mapping
- explain the design considerations for texturing including resource limitations and constraints, and target markets.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines


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- file storage
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM526 Create complex 3-D characters for games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan, and implement, a design for complex 3-D characters for games.

It applies to individuals with high-level technical, interpretive and communication skills and may be applicable to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clarify work requirements | 1.1 Identify the design requirements based on the project brief and documents<br>1.2 Using the design requirements, conceptualise the appropriate characters for the game environments, design, level specifications and genre<br>1.3 Gather and analyse the reference materials to help with the design, and visualisation, of 3-D character models |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Ensure that any missing requirements are considered and included in the design |
| 2. Conceptualise 3-D character design | 2.1 Document the design decisions that are made before, and during, the design conceptualisation<br>2.2 Outline the key attributes of the character<br>2.3 Examine the design considerations and generate the concept art for the 3-D characters |
| 3. Identify software tools that can be used to create 3-D characters | 3.1 Identify texturing tools, including painting, shading and texturing software and 3-D modelling tools |
| 4. Create complex 3-D characters | 4.1 Create base 3-D character models<br>4.2 Refine and polish the character models to a near finalised state<br>4.3 Create and map, the textures to apply to the 3-D character models<br>4.4 Refine the textures and apply shaders<br>4.5 Check the integrity and modify the 3-D characters until they meet the design requirements<br>4.6 Present the 3-D model to the relevant personnel |
| 5. Present the finished 3-D characters to relevant personnel | 5.1 Present the finished 3-D characters to the relevant personnel<br>5.2 Report on how the design decisions have met the 3-D character's design requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 4.5 | • Interprets analyses and comprehends briefs, instructions and conceptual information, to inform the design of environment specifications<br>• Interprets and comprehends a large range of diagrams, icons, symbols, text, numbers and letters necessary to use complex design software |


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| | | |
|---|---|---|
| Writing | 1.4, 2.1, 2.2 | • Communicates software and graphics requirements and code development to others, using correct spelling and grammar, plain English, and industry terminology |
| Oral Communication | 2.2, 2.3, 4.6, 5.1, 5.2 | • Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information<br>• Elicits information using effective listening and open questioning techniques<br>• Provides practical advice, support and feedback to colleagues and management |
| Numeracy | 4.1, 4.2, 4.3, 4.4, 4.5 | • Uses whole numbers, decimals and percentages relevant to measurement, resolution aspect ratio, pixel ratio, scale, coordinates, colour, shading, and other attributes/variables in the application of digital effects |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.1, 4.1-4.6, 5.1, 5.2 | • Plans, organises and completes work according to project brief and schedules, sequencing tasks to achieve efficient outcomes<br>• Actively sources and analyses reference materials to support 3-D character design<br>• Uses creativity and initiative in 3D character design and creation<br>• Uses systematic, analytical processes in routine and non-routine situations to identify potential quality issues or problems, evaluate options and choose solutions<br>• Uses the key features of specific digital systems and software to complete design and creation tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM526 Create complex 3-D characters for games | ICAGAM526A Create complex 3-D characters for games | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM526 Create complex 3-D characters for games

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and manage the design process for creating 3-D character models according to a design brief
- incorporate the design specifications and create complex 3-D character models
- produce and deliver documentation, showing evidence of concepts creation and design decisions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise budgeting and scheduling considerations for game design
- discuss the process used for computer game development
- summarise the current game-play hardware and software products, including any technical constraints imposed on design and development
- explain the technology and human resources required in the process of creating a game, and outline the team members' respective skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM527 Integrate database with online game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to integrate a database with an online game, where the relationship between the game server and the database server is also considered a client-server relationship on a local area network.

It applies to individuals with high-level technical and problem solving skills working as programmers, analyst programmers and game programmers responsible for the development of code to connect a computer game to a database.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Install application programming interfaces (APIs) suitable to the game's data source provider | 1.1 Research the appropriate application programming interfaces (APIs)<br>1.2 Identify the specific APIs suitable for the game architecture and the data source provider<br>1.3 Install the nominated APIs on game development computers |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Define and use a connection to the data source | 2.1 Define the game data source connection parameters<br>2.2 Store the connection parameters in an external text-based configuration file<br>2.3 Open and close the connection to the game data source |
| 3. Configure and use the connection pooling | 3.1 Configure connection pooling in the database management system<br>3.2 Define the connection pool parameters for minimum connections, maximum connections, and idle connections<br>3.3 Minimise the use of database resources through the use of connection pooling<br>3.4 Test and verify the use of connection pooling |
| 4. Pass embedded structured query language (SQL) to the database | 4.1 Define the database connection property<br>4.2 Compose a structured query language (SQL) statement or command to be passed to the database<br>4.3 Test, debug and execute the SQL statement |
| 5. Execute a stored procedure on a database | 5.1 Call a stored procedure on the database, using a command callable statement<br>5.2 Define and pass the parameters to the stored procedure<br>5.3 Test, debug and execute the database stored procedure |
| 6. Modify database data | 6.1 Retrieve multi-row multi-column result sets from the database into the game application domain<br>6.2 Insert new records into the database<br>6.3 Update existing database records<br>6.4 Delete existing database records |
| 7. Integrate data from the database with the game application domain | 7.1 Integrate data from a forward-only and read-only cursor into the game application domain<br>7.2 Incorporate the data from an updateable cursor into the game application domain |
| 8. Test and debug database integration code | 8.1 Test the database integration code<br>8.2 Document the test results<br>8.3 Determine the errors and exceptions, and document the solutions<br>8.4 Debug all errors and exceptions |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 8.5 Assess all data modifications in the database, and document any errors<br>8.6 Correct all causes to data modification errors |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Identifies and evaluates documents containing complex technical terminology to identify which APIs are best suited to the game application domain and the game architecture |
| Writing | 2.1, 2.2, 3.2, 4.1, 4.2, 4.3, 5.3, 6.2, 6.3, 8.2, 8.3, 8.5 | • Uses the appropriate programming code, syntax and conventions to update, test and de-bug the database integration code<br>• Documents test results and technical solutions, using correct spelling and grammar, plain English, and industry terminology |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.4, 4.1-4.3, 5.1-5.3, 6.1-6.4, 7.1, 7.2, 8.1-8.6 | • Plans, organises and completes work according to project brief and schedules, sequencing tasks to achieve efficient outcomes<br>• Actively sources and analyses reference materials related to database integration<br>• Uses creativity and initiative in database assessment and design<br>• Uses systematic, analytical processes in complex, routine and non-routine situations, gathering information, evaluating options, and identifying solutions to coding problems<br>• Uses key features, of specific digital systems and software effectively to complete defined tasks |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM527 Integrate database with online game | ICAGAM527A Integrate database with online game | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM527 Integrate database with online game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine and install application programming interfaces (API) for games development
- define and add database functionality to an online game
- integrate, test and modify the database data provided by game-play input and document all errors and solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide a detailed explanation of relational database theory, including how:
  - to create and test stored procedures
  - to create ‘embedded’ structured query language (SQL) and to assign parameters in the code for filtering
  - tables are related, and how relationships between tables are implemented
  - SQL is used to retrieve data from multiple tables
  - inserts to tables in parent/child relationships can be implemented using artificial (auto-generated) primary key values
  - to implement cascading updates and deletes
- summarise the principles of game development
- explain the principles of integrated development environments, including:
  - data access APIs and associated classes, required for the integration of a database with an online game
  - online help and documentation required for research and debugging code
  - user authentication and authorisation management


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- outline the methodologies and techniques required for effective and well-factored object-oriented program (OOP) code, including:
  - class implementation
  - control of logic flow
  - use of collections and lists
  - use of OOP concepts, such as inheritance, encapsulation and overloading
- describe the implications of web development on games integration.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- the game design specification and requirements documentation
- a game server
- a database server
- integrated development environment software and hardware
- browsers for browser-based games or game consoles for console-based games.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM528 Create games for mobile devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to demonstrate innovative game development strategies, to create games for mobile devices.

It applies to individuals with high-level technical, creative and communication skills working as concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research and document mobile gaming device technologies | 1.1 Research, identify and describe the current mobile devices suitable for games<br>1.2 Identity a suitable mobile device<br>1.3 Identify the technical limitations and constraints of the mobile gaming device<br>1.4 Research and identify the tools and technology for creating |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | applications for the mobile device<br>1.5 Identify a suitable tool for the mobile gaming device<br>1.6 Research, identify, and describe market-successful mobile game devices |
| 2. Plan the project | 2.1 Create or obtain the project brief and documents<br>2.2 Identify the game production assets required to meet creative and production requirements, and the technical specifications<br>2.3 Define developer roles and skills<br>2.4 Create a schedule for production and testing<br>2.5 Determine the strategies for monitoring the production progress against the schedule |
| 3. Create game assets | 3.1 Create graphics assets<br>3.2 Create music and sound assets |
| 4. Develop a game prototype | 4.1 Develop a game prototype using a programming language<br>4.2 Create and check game-play elements, according to creative and technical requirements<br>4.3 Test and run game-play on mobile devices<br>4.4 Identify whether or not the game meets creative, production and technical requirements |
| 5. Evaluate the game prototype | 5.1 Demonstrate the initial prototype to relevant personnel<br>5.2 Evaluate against criteria, including achievement of a creative and user-friendly product<br>5.3 Discuss, and agree, on required changes to the prototype<br>5.4 Assist, if required, in tests and user trials<br>5.5 Evaluate the feedback from user trials<br>5.6 Confirm the endorsement from relevant personnel to develop the prototype into a complete product |
| 6. Transform the prototype into a final proof-of-concept prototype | 6.1 Make the necessary changes, as indicated by user trials<br>6.2 Integrate all the game elements, as required by specifications<br>6.3 Polish the game |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.2, 4.2, 4.4, 5.5, 6.2 | • Interprets, analyses and comprehends briefs, instructions, and conceptual information to inform design specifications<br>• Interprets and comprehends a large range of diagrams, icons, symbols, text, numbers, and letters necessary to use complex programming software |
| Writing | 1.1, 1.6, 2.1, 2.3, 2.4, 2.5, 4.1, 4.2, 5.6 | • Uses plain English and industry terminologies to develop plans and schedules<br>• Develops an interactive product using complex programming language |
| Oral Communication | 5.1, 5.3, 5.6 | • Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information<br>• Elicits information using effective listening and questioning techniques |
| Interact with others | 5.3, 5.6 | • Collaborates with others as part of familiar routine activities to achieve requirements |
| Get the work done | 1.1, 1.2, 2.1-2.6, 3.1 | • Actively sources information, applications and tools with the potential to meet the development requirements<br>• Plans work schedules and organises and completes tasks required to achieve outcomes<br>• Uses creativity and initiative in game design<br>• Uses systematic, analytical processes in routine and non-routine situations, conducting evaluations, gathering information and assessing potential solutions |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM528 Create games for mobile devices | ICAGAM528A Create games for mobile devices | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM528 Create games for mobile devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- document plans and schedules relevant to game development
- implement game development and production strategies
- apply strategies for trialling and testing game prototypes
- evaluate whether games meet design brief, creative and technical requirements
- produce and demonstrate an original working game on a mobile device.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe current successful mobile game devices
- summarise the current tools and technologies needed for creating applications on mobile devices products
- summarise the technical constraints that mobile devices place on design and development of games
- outline suitable programming languages for mobile devices
- provide a detailed summary of budgeting and scheduling considerations for game design
- explain the importance of risk assessment and critical path planning
- explain the human resources required in the process of creating a game for a mobile device, and outline the team members' respective skills.
- outline the techniques for concept visualisation and development.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM529 Analyse business opportunities in the digital games environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research the current digital games climate and analyse business opportunities.

It applies to individuals with high-level technical, creative and communication skills working as concept artists, games designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the Australian digital games industry and development companies | 1.1 Identify both large and small organisations in the Australian digital games industry<br>1.2 Identify recent projects undertaken by small and large organisations in the Australian digital games industry<br>1.3 Identify the resources required for the production of a digital game in a small business environment |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Determine the process of subcontracting various production elements to other small businesses |
| 2. Determine the structure of a game-development team | 2.1 Identify the roles of engineers, artists, game designers, producers and additional staff<br>2.2 Identify the skills required to occupy each role in a game development team<br>2.3 Determine the interaction and collaboration between these roles |
| 3. Investigate the process of starting an independent game development business | 3.1 Identify the major factors involved in starting a small business in the digital games industry<br>3.2 Identify the legal requirements, environmental impact and sustainability considerations, and financial management of operating a small business<br>3.3 Identify the legal protection of the small business operator and dissolution procedures for a small business |
| 4. Evaluate the role of the Australian government and other organisations related to digital game production | 4.1 Identify the role of the Australian government and other organisations affecting the digital games industry<br>4.2 Identify the influence of the Australian government in game production and marketing<br>4.3 Determine the effect of rating standards on digital game production and marketing |
| 5. Review copyright and intellectual property laws | 5.1 Determine copyright and intellectual property laws related to digital game development<br>5.2 Undertake a review of the current state of national and international copyright pertaining to digital game assets<br>5.3 Incorporate the conventions of copyright related to the production of a digital game project |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.2, 3.1-3.3, 4.1, 4.2, 4.3, 5.1, 5.2, 5.3 | • Interprets, analyses and comprehends information from a range of relatively complex sources, including legislation |
| Writing | 1.1-1.3, 2.1, 2.2, 3.1-3.3, 4.1, 4.2, 5.2, 5.3 | • Documents results of research, analysis and reviews to inform analysis of business opportunities and requirements |
| Numeracy | 1.3 | • Analyses the budgetary requirements for the creation of a digital game in a small business environment |
| Navigate the world of work | 3.2, 3.3, 5.1, 5.2, 5.3 | • Identifies, confirms and incorporates legislative requirements of business operations |
| Get the Work Done | 1.4, 2.2, 2.3, 4.3, 5.1, 5.2 | • Systematically plans tasks to gather required information to build understanding of the digital games environment<br>• Makes critical decisions in complex situations, taking a range of variables into consideration<br>• Investigates new and innovative ideas as a means to identify business opportunities |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM529 Analyse business opportunities in the digital games environment | ICAGAM529A Analyse business opportunities in the digital games environment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM529 Analyse business opportunities in the digital games environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research the key organisations and types of projects undertaken in the Australian digital games industry
- document the resources, roles and skills requirements of a games development team, and the interaction required between team members
- research and document the main factors to consider for starting up and operating a small business in the digital games industry, including legal, government, environmental and financial considerations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain sources of information about the Australian digital games industry
- explain the process of subcontracting
- explain various methods that could be used to allow interaction and collaboration between different members of a development team
- explain how rating standards affect digital game production and marketing
- explain risk and critical-path management
- outline copyright and intellectual property laws as they pertain to the development of digital games.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage
- the internet for research purposes
- relevant legislation, including copyright and intellectual property legislation, and work health and safety legislation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM530 Develop and implement physics in a 3-D digital game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to integrate a physics, and rendering, engine into a 3-D digital game.

It applies to individuals with high-level technical and mathematical skills working as game engine developers, gameplay programmers and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop a game world system | 1.1 Develop code using a programming language and create instances of the rendering engine, the scene manager and physics engine's world objects<br>1.2 Constrain the frame rate to a desired frame rate |
| 2. Develop components to support game world | 2.1 Create and implement the game physics system |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| creation using physics | 2.2 Implement the game object primitives<br>2.3 Use or develop a physics debugger to show collision frames |
| 3. Develop an understanding of constraint dynamics | 3.1 Generate game objects or physics bodies constrained by joints<br>3.2 Build a ragdoll using the game physics system |
| 4. Develop an understanding of physics interactivity | 4.1 Use the game physics system to ray cast the scene<br>4.2 Implement a player-controlled model<br>4.3 Implement and develop game physics system models |
| 5. Develop an interactive scene | 5.1 Use primitives to build a scene<br>5.2 Use trigger volumes to fire off events<br>5.3 Capture the collision events with call-backs<br>5.4 Use a toggle for collision frames |
| 6. Compile a report | 6.1 Build class diagrams for all objects<br>6.2 Describe the techniques used to create interactivity<br>6.3 Describe the objects and when they were used<br>6.4 Document the libraries used |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 1.1, 2.1, 2.3, 6.1, 6.2, 6.3, 6.4 | • Uses technical terminology to document reports<br>• Uses the appropriate programming code, syntax and conventions to develop the game |
| Numeracy | 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 4.1, 4.3, 5.1, 5.2, 5.3 | • Uses complex physics to simulate the world by creating mathematical models which measure mass<br>• Computes algorithms to regulate time and speed<br>• Interprets matrix-related functions to determine rate and scale<br>• Completes algorithmic geometry to determine the relationship between points, angles, lines, surfaces and solids |


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| | | |
|---|---|---|
| Get the work done | 1.1, 1.2, 2.1-2.3, 3.1, 3.2, 4.1-4.3, 5.1-5.4, 6.1-6.4 | • Plans, organises and completes work according to defined requirements and schedules<br>• Uses a systematic process to evaluate work, implement improvements and solve problems<br>• Uses creativity and initiative in the application of game physics<br>• Uses the key features of, specific digital systems and tools, and operates them effectively to complete design tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTGAM530 Develop and implement physics in a 3-D digital game | ICAGAM530A Develop and implement physics in a 3-D digital game | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM530 Develop and implement physics in a 3-D digital game

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop and document an interactive game that implements game physics
- identify, evaluate, and use a physics library.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain basic programming techniques needed to develop game objects
- describe the integration issues of common physics concepts in games design
- summarise the current game-play hardware and software products, including any technical constraints they impose on design and development
- summarise the human resources required in the process of creating a game, and respective skills
- explain the techniques for applying concept development and visualisation skills.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- suitable development environment
- physics libraries
- computer hardware and software
- games engines
- file storage.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTGAM531 Complete compositing to create elements for the 3-D and digital effects environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to determine design requirements, plan, create and store composite photographic and 3-D digital effects elements.

It applies to individuals with high-level information technology skills who may work as compositors, matte painters, concept artists, modellers, animators, game designers, directors and other personnel working in the film, television and game development industries.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Game development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm the compositing requirements | 1.1 Undertake consultations with the client to develop the compositing brief<br>1.2 Plan and schedule the compositing work<br>1.3 Identify the appropriate software tools, equipment and media for compositing work<br>1.4 Consult with the relevant personnel in regard to the technical |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | aspects of the proposed compositing<br>1.5 Confirm the compositing requirements with the client prior to work commencement |
| 2. Prepare the elements for compositing | 2.1 Select the resolution and aspect ratio for final composited output<br>2.2 Create the digitised elements through non-digital means<br>2.3 Identify and obtain the source plates or layers, images and other elements for compositing<br>2.4 Modify or repair elements that are problematic, or inconsistent, with the desired outcomes<br>2.5 Undertake the colour correction of plates and elements<br>2.6 Create additional elements, where required<br>2.7 Generate mattes |
| 3. Composite images to achieve an integrated result | 3.1 Track and stabilise the images to be composited<br>3.2 Match cameras, lighting and shadows, and add motion blur, as required, to finalise the composite<br>3.3 Integrate the plates, layers or elements in the correct sequence, using compositing software<br>3.4 Incorporate the grain, where required<br>3.5 Present the test composites to the client for approval |
| 4. Render the composited images and save files | 4.1 Optimise the composited images for rendering<br>4.2 Undertake the rendering process using efficient levels of resources<br>4.3 Store or archive rendered files in the specified output format<br>4.4 Review the completed render, to ensure quality and compliance with system requirements and the client brief |
| 5. Present the composite to the client for final approval | 5.1 Present the final composited images for client approval<br>5.2 Make adjustments to composited images, where required, to meet client requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 4.4 | • Interprets, analyses and comprehends brief, instructions, technical and conceptual documentation and images relevant to a 3-D and digital games environment |
| Writing | 1.1, 1.2, 1.5 | • Uses plain English and industry terminologies to create clearly formatted documentation to confirm brief during the consultative phase of the project |
| Oral Communication | 1.1, 1.4, 1.5, 3.5, 5.1 | • Speaks clearly and concisely, converting technical language into plain English when providing information<br>• Elicits information using effective listening and open questioning techniques |
| Numeracy | 2.1 | • Determines the proportional relationship between the width, height and ratio of the final output |
| Interact with others | 1.1, 1.4, 1.5, 3.5, 5.1 | • Conducts successful negotiations, in a variety of contexts, with suppliers, colleagues or clients |
| Get the work done | 1.2, 1.3, 2.1-2.7, 3.1-3.5, 4.1-4.4, 5.2 | • Plans, organises and completes work according to defined brief and schedules<br>• Uses creativity and initiative in compositing<br>• Uses a systematic process to evaluate work, implement improvements and solve problems<br>• Actively sources, analyses and evaluates applications, tools and media with the potential to meet compositing requirements<br>• Uses key features of specific digital systems and tools to complete compositing tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTGAM531 Complete compositing to create elements for | ICAGAM531A Complete compositing to create elements for the 3-D and | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| the 3-D and digital effects environment | digital effects environment | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTGAM531 Complete compositing to create elements for the 3-D and digital effects environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a compositing brief, and schedule compositing work taking into account client requirements, and technical aspects
- communicate with others to discuss requirements and technical aspects of the job
- complete the compositing tasks to the required level of quality, according to the brief
- refine the elements for consistency, best image quality and visual impact
- adhere to system requirements related to file size, format and storage.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide a detailed summary of 3-D modelling, animation and visual effects development
- explain the aspect ratios for image output
- provide a detailed summary of camera, lighting and shadow matching
- discuss the efficient sizes and the appropriate formats for composited files
- summarise the scheduling and sequencing of production and post-production tasks
- discuss the range of compositing software available
- explain rendering principles.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage
- compositing and output documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT101 Operate a personal computer

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to operate a personal computer (PC) in a home or small office environment, including accessing files with application programs, sending and retrieving emails, using the internet, using peripheral devices and applying basic security procedures and power management settings.

It applies to individuals who require entry level information and communications technology (ICT) knowledge and literacy skills to perform a range of simple operation tasks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use the personal computer | 1.1 Identify physical components and associated peripheral devices of the personal computer to become familiar with the available network<br>1.2 Check physical connectivity of devices to ensure correct operation and performance<br>1.3 Boot up and follow procedures to activate the computer |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Manage computer configurations | 2.1 Alter the computer settings to best suit the user<br>2.2 Configure power management settings to minimise power consumption as an environmentally sustainable measure<br>2.3 Identify operating system and the application programs loaded on the computer to determine computer capability<br>2.4 Conduct basic software installation and removal to improve computer capability<br>2.5 Navigate and manipulate desktop environment to create and customise desktop icons and access application programs |
| 3. Access and use basic application programs | 3.1 Open a folder with file documents containing basic office applications, make minor changes and save in a different folder<br>3.2 Send and retrieve a simple email message using the desktop icon to communicate with other parties<br>3.3 Access the internet using the web browser to view and conduct basic web information search<br>3.4 Use firewall and antivirus and malware scans to reduce security risks and threats in the system |
| 4. Access and use basic peripheral devices | 4.1 Access external storage devices to retrieve, copy, move and save information in different media and locations<br>4.2 Use printer settings on an installed printer to print a document<br>4.3 Access audio-visual (AV) devices to view and play a multimedia file |
| 5. Shut down computer | 5.1 Back up important documents and programs to minimise risk of data loss<br>5.2 Save any work to be retained and close open application programs<br>5.3 Shut down computer and switch off any unused peripheral devices |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 2.1-2.5, 3.2, 3.3 | • Recognises textual information to determine and complete technical functions |
| Writing | 3.1- 3.3, 4.1 | • Enters information using familiar text types in a format appropriate to environment |
| Get the work done | 1.1-1.3, 2.1-2.5, 3.1-3.4, 4.1-4.3, 5.1-5.3 | • Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing<br>• Understands the purpose and specific functions of common digital tools used in work contexts<br>• Implements basic security requirements related to own tasks<br>• Recognises and responds to predictable routine problems related to role in the immediate work context |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT101 Operate a personal computer | ICAICT101A Operate a personal computer | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT101 Operate a personal computer

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use hardware and software
- navigate around the desktop, using features to perform tasks
- save results of work.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify basic parts of a computer and various hardware components
- explain commonly used software operation and application packages
- name basic security functions and computer functions
- list a range of peripheral devices that can be used with a personal computer
- describe common computer storage devices.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- appropriate learning and assessment support when required
- personal computer, including printer, mouse, keyboard and monitor
- use of basic software currently used in industry.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT102 Operate word-processing applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to operate word- processing applications and perform basic operations, including creating and formatting documents, creating tables and printing labels.

It applies to individuals in the workplace using fundamental knowledge of word-processing under direct supervision or with limited responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Apply workplace health and safety (WHS) practices | 1.1 Use workplace ergonomic work practices and strategies<br>1.2 Organise work area to ensure an ergonomic work environment |
| 2. Create documents | 2.1 Open word-processing application, create document and add data according to information requirements<br>2.2 Use document templates as required |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Use simple formatting tools when creating the document<br>2.4 Save document to directory |
| 3. Customise basic settings to meet page layout conventions | 3.1 Adjust page layout to meet information requirements<br>3.2 Open and view different toolbars<br>3.3 Change font format to suit document purpose<br>3.4 Change alignment and line spacing according to document information requirements<br>3.5 Modify margins to suit the document purpose<br>3.6 Open and switch between several documents |
| 4. Format documents | 4.1 Use formatting features and styles as required<br>4.2 Highlight and copy text from another area in the document or from another active document<br>4.3 Insert headers and footers to incorporate necessary data<br>4.4 Save document in another file format<br>4.5 Save and close document to a storage device |
| 5. Create tables | 5.1 Insert standard table into document<br>5.2 Change cells to meet information requirements<br>5.3 Insert and delete columns and rows as necessary<br>5.4 Use formatting tools according to style requirements |
| 6. Add images | 6.1 Insert appropriate images into document and customise as necessary<br>6.2 Position and resize images to meet document formatting needs |
| 7. Print documents | 7.1 Preview document in print preview mode<br>7.2 Select basic print settings<br>7.3 Print document or part of document from printer |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 3.1, 3.4, 7.1 | • Interprets specific information to determine and complete work required |
| Writing | 2.1, 4.3 | • Prepares simple correspondence that incorporates key information in a format and style relevant to requirements |
| Navigate the world of work | 1.1 | • Takes some personal responsibility for adherence to regulatory requirements |
| Get the work done | 1.2, 2.1, 3.1-3.6, 4.1-4.5, 5.1-5.4, 6.1, 6.2, 7.2, 7.3 | • Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing<br>• Understands the purpose and specific functions of common digital tools used in work contexts<br>• Recognises and responds to common operational problems when using word-processing applications |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT102 Operate word-processing applications | ICAICT102A Operate word-processing applications | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT102 Operate word-processing applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- follow organisational ergonomic work health and safety (WHS) requirements and practices
- create, open and retrieve documents using customised basic settings
- format documents by creating tables and adding text, objects and images
- save and prints documents.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe formatting styles and their effect on formatting, readability and appearance of documents
- identify organisational requirements for ergonomics, including work periods and breaks
- select organisational style guide to use
- outline purpose, use and function of word-processing software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer and printer
- word-processing software currently used in industry


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- documents detailing organisational style guide or policy and work health and safety (WHS) requirements
- data suitable for use with word-processing packages.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT103 Use, communicate and search securely on the internet

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to connect to the internet, securely send and receive emails, search the internet using web browsers and interact securely and in a socially responsible manner with a range of different internet sites.

It applies to individuals who use business technology to perform a range of routine tasks in the workplace or home office with limited responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Connect to and access the internet | 1.1 Connect to internet via existing internet connection and confirm functionality<br>1.2 Open internet browser and set home page of personal choice by setting internet options<br>1.3 Ensure internet browser software security<br>1.4 Adjust display of the internet browser to suit personal requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Modify toolbar to meet user and internet browser needs<br>1.6 Access a particular website, note privacy and other conditions of use, and retrieve data<br>1.7 Use socially responsible behaviour when sharing information on the internet<br>1.8 Enter uniform resource locator (URL) in address line of internet browser |
| 2. Use email for communications | 2.1 Open email application package, create new email message and add addressees<br>2.2 Compose text of an email message according to organisational guidelines, and spell check and edit text as required<br>2.3 Create and add an automatic signature for the user<br>2.4 Attach files to email message where required<br>2.5 Determine and set priority and send email message<br>2.6 Reply to and forward a received message using available features<br>2.7 Open and save an attachment to the relevant folder<br>2.8 Search for, sort and save email message using available settings<br>2.9 Adjust email accounts to restrict and quarantine possible email security problems<br>2.10 Print email message as required |
| 3. Search the internet | 3.1 Review organisational guidelines on internet access<br>3.2 Open internet application and locate and access a search engine on the internet, and define search expressions based on data required<br>3.3 Enter appropriate key words into the search engine to locate desired information<br>3.4 Refine a search depending on outcomes of original search<br>3.5 Save search expression results and present them in a report according to information requirements<br>3.6 Create a bookmark within the internet browser or a link for the required web page for the key results<br>3.7 Save key results in a bookmark folder<br>3.8 Modify internet browser options for printing and print a |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | web page<br>3.9 Close internet browser |
| 4. Access and use consumer specific sites on the internet | 4.1 Identify, access and review information specific sites to gain consumer information<br>4.2 Identify and use internet application sites to lodge details and gain access and information<br>4.3 Access and use online forms on the internet |
| 5. Undertake online transactions | 5.1 Access online transaction site<br>5.2 Ensure security of transaction site<br>5.3 Enter required information into fields on merchant's website<br>5.4 Ensure pop-up dialog boxes, prompts or feedback mechanisms are completed<br>5.5 Enter, check and make changes to preferred transaction options<br>5.6 Complete online transaction<br>5.7 Record and archive receipts according to business processes<br>5.8 Close down and leave transaction process |
| 6. Conduct an advanced search | 6.1 Use search tools and advanced search features<br>6.2 Use Boolean search techniques when required to enhance the search<br>6.3 Use multiple or meta-search tools with a range of key words<br>6.4 Use search engines particular to a field of knowledge to refine the outcome<br>6.5 Access related virtual community sites and newsgroups, and note their objectives and operational arrangements<br>6.6 Conduct a search with domain names to refine the search |
| 7. Use information that has been located | 7.1 Cross reference information found by using several websites to determine accuracy of information<br>7.2 Check date that website was last updated or properties of website to determine currency of information<br>7.3 Determine website authority by looking at copyright statements, privacy statements and organisational information<br>7.4 Save and print information found in different file forms |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 1.6, 2.1, 2.6-2.8, 3.1, 3.2, 4.1-4.3, 5.1, 5.2, 5.4, 5.5, 6.5, 7.1-7.3 | • Interprets textual information and instructions to efficiently undertake the task |
| Writing | 2.1-2.3, 3.5, 5.3, 5.4, 5.7 | • Uses required format to accurately enter information specific to requirements<br>• Composes short and specific messages using format, grammar and language appropriate to audience |
| Navigate the world of work | 1.7 | • Understands main responsibilities and boundaries of own role |
| Get the work done | 1.1-1.8, 2.1, 2.3-2.10, 3.2-3.9, 4.1-4.3, 5.1-5.8, 6.1-6.6, 7.4 | • Plans routine tasks with familiar goals and outcomes, taking limited responsibility for decisions regarding sequencing<br>• Understands the purpose and specific functions of common digital tools used in work contexts<br>• Recognises and responds to common operational problems when using web browsers<br>• Takes responsibility for routine low-impact decisions within familiar situations<br>• Implements basic security requirements related to own tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT103 Use, communicate and search securely on the internet | ICAICT103A Use, communicate and search securely on the internet | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT103 Use, communicate and search securely on the internet

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- connect to and access the internet
- send and receive emails
- secure internet access and email communications
- use search tools to locate information
- use different internet search techniques
- research and select appropriate website
- undertake online transactions
- assess the accuracy, currency, authority and reliability of the site and information located.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must :

- list basic technical terminology related to reading help files and prompts
- describe the basics of copyright and privacy statements
- explain different types of messages that occur, including error messages and messages to install plug-ins
- list different types of search engines and web browsers
- list procedures for using email applications
- list procedures for evaluating and assessing the authority, reliability and authenticity of information
- outline internet search functions
- describe internet speed and traffic loads related to times of accessing the internet
- describe the makeup and structure of internet addresses


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- list organisational guidelines on internet and email use (web etiquette or netiquette)
- describe business process related to online transactions
- describe web browser update techniques
- explain what key words and bookmarks are used for.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer or digital device with internet
- search engines currently used in industry
- organisational policies on internet usage.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT104 Use digital devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use a range of digital devices, such as a digital camera, video camera, or personal digital assistant (PDA) device.

It applies to individuals who require entry level information and communications technology (ICT) knowledge and literacy skills to support their work in a home office or small office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use the digital device | 1.1 Review the instruction manual and ensure identified components are available<br>1.2 Identify the physical components of the digital device<br>1.3 Turn on and follow access procedures to activate the digital device<br>1.4 Alter the digital device settings to best suit intended use<br>1.5 Configure power management settings where appropriate to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | minimise power consumption, as an environmentally sustainable measure |
| 2. Set up and use the digital device | 2.1 Identify and set the basic operating, security and menu settings<br>2.2 Navigate and manipulate the screen environment<br>2.3 Customise screen icons and access to applications where applicable<br>2.4 Use the digital device, and save and edit output where applicable<br>2.5 Identify more advanced features available and use as required |
| 3. Access and use basic connectivity devices | 3.1 Connect to external digital devices, such as computer devices or storage devices, to retrieve, copy, move and save information<br>3.2 Check physical connectivity of computer devices or storage devices to ensure operation and performance<br>3.3 Connect to a printer either through a computer device or directly, and use printer settings and print data<br>3.4 Access audio-visual devices to view and play a multimedia file |
| 4. Shut down digital device | 4.1 Save current work and back up important data<br>4.2 Close open programs on the digital device and any computer device or storage device<br>4.3 Shut down digital devices, according to manufacturer instructions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1-2.5, 3.1, 3.4, 4.3 | • Reviews on-line and hard-copy text, and interprets and comprehends symbols, text, numbers and letters to determine and adhere to requirements |


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| | | |
|---|---|---|
| Get the work done | 1.1-1.5, 2.1-2.5, 3.1-3.4, 4.1-4.3 | • Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Plans a range of routine tasks with familiar goals and outcomes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT104 Use digital devices | ICAICT104A Use digital devices | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT104 Use digital devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- turn on a digital device
- use the menu features and navigate a graphical user interface
- use device features to perform tasks
- save the results of work.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must :

- outline the capabilities and connectivity requirements of relevant:
  - audio-visual devices
  - peripheral devices
  - storage devices
- list basic security functions
- explain basic software operation and associated applications
- explain digital device functions
- explain digital device settings.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry and include access to:

- digital devices


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- computer
- storage devices
- printer
- device-specific application currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT105 Operate spreadsheet applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use spreadsheet applications, including creating spreadsheets, formatting data, incorporating charts and objects, and printing spreadsheets.

It applies to individuals who perform a range of routine tasks in the workplace using a fundamental knowledge of spreadsheets under direct supervision or with limited responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Create spreadsheets | 1.1 Open the spreadsheet application, create spreadsheet files and enter numbers, text and symbols into cells according to information requirements<br>1.2 Enter simple formulas and functions using cell referencing when required<br>1.3 Correct formulas when error messages occur<br>1.4 Use a range of common tools during spreadsheet |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | development<br>1.5 Edit columns and rows within the spreadsheet<br>1.6 Use the auto-fill function to increment data where required<br>1.7 Save the spreadsheet to a folder on a storage device |
| 2. Customise basic settings | 2.1 Adjust page layout to meet user requirements or special needs<br>2.2 Open and view different toolbars<br>2.3 Change font settings so they are appropriate for the document purpose<br>2.4 Change alignment options and line spacing according to spreadsheet formatting features<br>2.5 Format cell to display different styles as required<br>2.6 Modify margin sizes to suit the purpose of the spreadsheets<br>2.7 View multiple spreadsheets concurrently |
| 3. Format spreadsheet | 3.1 Use formatting features as required<br>3.2 Copy selected formatting features from another cell in the spreadsheet or from another active spreadsheet<br>3.3 Use formatting tools as required within the spreadsheet<br>3.4 Align information in a selected cell as required<br>3.5 Insert headers and footers using formatting features<br>3.6 Save spreadsheet as another file type<br>3.7 Save to storage device and close spreadsheet |
| 4. Incorporate object and chart in spreadsheet | 4.1 Import an object into an active spreadsheet<br>4.2 Manipulate imported object by using formatting features<br>4.3 Create a chart using selected data in the spreadsheet<br>4.4 Display selected data in a different chart<br>4.5 Modify chart using formatting features |
| 5. Print spreadsheet | 5.1 Preview spreadsheet in print preview mode<br>5.2 Select basic printer options<br>5.3 Print spreadsheet or selected part of spreadsheet<br>5.4 Submit the spreadsheet to appropriate person for approval or feedback |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1 | • Interprets and comprehends symbolic, textual and numerical information and data<br>• Identifies data specifically needed for the spreadsheet from information received |
| Writing | 1.1, 1.2, 1.5, 3.5, 4.5 | • Enters both written and verbally received information and data into a format suitable for spreadsheet analysis<br>• Selects vocabulary, terminology and naming conventions suitable for the spreadsheet |
| Oral Communication | 1.1, 2.1, 5.4 | • Uses simple and relevant language with listening and questioning skills to confirm user requirements and elicit feedback |
| Numeracy | 1.2, 4.3, 4.4 | • Adds, subtracts, multiplies and divides whole numbers and decimals, identifying and selecting the correct formulas and functions to use<br>• Applies the order of operations in calculations<br>• Identifies and comprehends the specific numeric data needed to create charts |
| Interact with others | 5.4 | • Begins to use some routine forms of written communication relevant to immediate work role, with a limited awareness of requirements and expectations |
| Get the work done | 1.1-1.7, 2.1-2.7, 3.1-3.7, 4.1-4.5, 5.1-5.3 | • Plans routine tasks with familiar goals and outcomes, taking limited responsibility for decisions regarding sequencing<br>• Understands the purpose and specific functions of common digital tools used in work contexts<br>• Takes responsibility for routine low-impact decisions within familiar situations |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT105 Operate spreadsheet applications | ICAICT105A Operate spreadsheet applications | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT105 Operate spreadsheet applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create spreadsheets
- customise basic settings
- format spreadsheets
- create basic formulas
- insert objects and charts in spreadsheets
- save and print spreadsheets.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list basic technical terminology related to reading help files and prompts
- explain the effect of formatting and appearance on the readability and usability of spreadsheets
- outline log-in procedures relating to accessing a personal computer (PC)
- describe the purpose, use and function of spreadsheet applications.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer (PC) and printer
- spreadsheet software currently used in industry
- documents detailing organisational style guide and policy
- documents or information containing data suitable for creating spreadsheets.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT106 Operate presentation packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to perform basic tasks using a presentation application package, and includes creating, formatting and adding effects to presentations.

It applies to individuals employed in a range of work environments who need to be able to present a set range of data in a simple and direct format.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Create presentations | 1.1 Open presentation package and create a simple design for a presentation according to organisational requirements<br>1.2 Open blank presentation and add text and graphics<br>1.3 Apply existing styles within a presentation<br>1.4 Use presentation template and slides to create a presentation<br>1.5 Use various tools to improve the look of the presentation<br>1.6 Save presentation to the appropriate storage device and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | folder |
| 2. Customise basic settings | 2.1 Adjust display to meet user requirements<br>2.2 Open and view different toolbars to view options<br>2.3 Ensure font settings are appropriate for the presentation purpose<br>2.4 View multiple slides at once |
| 3. Format presentations | 3.1 Use and incorporate organisational charts and bulleted lists, and modify as required<br>3.2 Add objects and manipulate to meet presentation purposes<br>3.3 Import objects and modify for presentation purposes<br>3.4 Modify slide layout, including text and colours, to meet presentation requirements<br>3.5 Use formatting tools as required within the presentation<br>3.6 Duplicate slides within and across a presentation<br>3.7 Reorder sequence of slides and delete slides for presentation purposes<br>3.8 Save presentation in another format<br>3.9 Save to storage device and close presentation |
| 4. Add slide show effects | 4.1 Incorporate pre-set animation and multimedia effects into presentation as required to enhance the presentation<br>4.2 Add slide transition effects to presentation to ensure smooth progression through the presentation<br>4.3 Test presentation for overall effect<br>4.4 Use onscreen navigation tools to start and stop slide show or move between different slides as required |
| 5. Print presentation and notes | 5.1 Select appropriate print format for presentation<br>5.2 Select preferred slide orientation<br>5.3 Add notes and slide numbers<br>5.4 Preview slides and run spell check before presentation<br>5.5 Print selected slides and submit presentation to appropriate person for feedback |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1,5, 2.1, 4.3, 5.4 | • Reviews on-line and hardcopy text, and identifies relevant organisational and job requirements<br>• Interprets and comprehends symbols, text, numbers and letters necessary for operating computer hardware and software |
| Writing | 1.2, 5.3 | • Uses appropriate terminology and plain English to enhance the presentation and add notes |
| Oral Communication | 1.1, 2.1, 5.5 | • Uses effective questioning and listening techniques, and simple and relevant terminology to clarify requirements and obtain feedback |
| Numeracy | 3.7, 4.1 | • Counts, adds and subtracts whole numbers and fractions for sequencing and timing purposes |
| Interact with others | 5.5 | • Begins to use routine forms of written communication relevant to immediate work role with a limited awareness of requirements and expectations |
| Get the work done | 1.1-1.6, 2.1-2.4, 3.1-3.9. 4.1-4.4, 5.1, 5.4, 5.5 | • Plans routine tasks with familiar goals and outcomes, taking limited responsibility for decisions regarding sequencing<br>• Understands purpose and specific functions of common digital tools used in work contexts<br>• Takes responsibility for routine, low-impact decisions within familiar situations |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT106 Operate presentation packages | ICAICT106A Operate presentation packages | Updated to meet Standards for Training Packages. | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | Minor edits to clarify intent of performance criteria. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT106 Operate presentation packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create, format and prepare presentations for distribution and display
- customise basic settings
- add slide show effects.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list basic technical terminology to read help files and prompts
- outline the different types of:
  - formal and informal presentations
  - audience
- explain the effect of design and formatting on the readability and usability of presentations
- outline presentation pitfalls
- identify suitable presentation effects for different audiences.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer (PC) and printer
- presentation software currently used in industry


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- documents detailing organisational style guide and policy.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT107 Use personal productivity tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use the features and components of a range of personal productivity tools.

It applies to individuals who perform routine tasks in the workplace and use a range of current technology based personal productivity tools, under direct supervision or with limited responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Use calendar features | 1.1 Navigate within the calendar of the personal productivity tool and schedule events and appointments<br>1.2 Set a reminder and customise the reminder<br>1.3 Customise the calendar views, menus and toolbars, and work within different views<br>1.4 Delete events and appointments<br>1.5 Customise the calendar's print options and print the calendar |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | according to format requirements |
| 2. Use contact management | 2.1 Create, edit and delete contacts as required, recording information in the appropriate fields<br>2.2 Use contact information for email purposes according to organisational policies related to privacy<br>2.3 Group contacts into categories that are consistent and meaningful |
| 3. Use additional features | 3.1 Link activities and contacts when required<br>3.2 Use expense sheets, search facilities, notes and email when appropriate<br>3.3 Integrate the above features with other applications or the calendar and contacts list |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1, 2.2 | • Interprets and comprehends a large range of signs, symbols, pictures, text, numbers and letters necessary to operate a range of personal productivity tools<br>• Interprets instructions containing basic words and sentence structures |
| Writing | 1.1, 1.2, 2.1, 2.2, 3.2 | • Enters written information using simple sentence structure, correct terminology, and writing conventions suitable for personal productivity tools |
| Numeracy | 1.1, 1.2, 3.2 | • Counts, adds, subtracts, multiplies and divides whole numbers and fractions and decimals to schedule appointments and use expense sheets |
| Get the work done | 1.1-1.5, 2.1-2.3, 3.1-3.3 | • Follows routine procedures for using digital technology to enter, store and retrieve information directly relevant to role<br>• Understands the purpose and specific functions of common digital tools used in work contexts<br>• Plans routine tasks with familiar goals and outcomes, taking limited responsibility for decisions regarding |


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| | | |
|---|---|---|
| | | sequencing and timing |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT107 Use personal productivity tools | ICAICT107A Use personal productivity tools | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT107 Use personal productivity tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use the calendar of the personal productivity tool to schedule events and appointments
- create, edit and delete contacts
- use the additional features of a particular personal productivity tool and software.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline organisational policies regarding:
  - email list
  - internet connection and usage policy
  - web etiquette
  - calendar and scheduling tools.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry and include access to:

- a personal productivity device
- organising software currently used in industry
- organisational policies on internet usage.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT108 Use digital literacy skills to access the internet

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to safely and securely use the internet to undertake basic interactive communication.

It applies to individuals who locate, organise, understand, evaluate and analyse information using digital technology in a range of different areas.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Operate hardware at a basic level | 1.1 Identify hardware components required to connect to the Internet<br>1.2 Set up and check physical connectivity of devices<br>1.3 Use hardware components and comply with work health and safety (WHS) guidelines |
| 2. Ensure safe and secure online access | 2.1 Connect and access relevant internet sites<br>2.2 Provide an appropriate level of personal information to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | maintain privacy and security<br>2.3 Comply with copyright and intellectual property legislation<br>2.4 Ensure an understanding of socially responsible behaviour<br>2.5 Assess the legitimacy of online requests to make an informed decision<br>2.6 Interpret and respond to security notifications that display due to browser software security settings or internet use<br>2.7 Assess email status and determine email security<br>2.8 Provide appropriate information to manage digital footprint<br>2.9 Assess security of payments<br>2.10 Back up data as required through downloading to an external backup device |
| 3. Research and analyse online information | 3.1 Identify and use search engines to access relevant internet sites<br>3.2 Search and find relevant information or content<br>3.3 Refine search to increase relevance of information or content<br>3.4 Navigate a website to access the information or content required<br>3.5 Assess payment requirements to make sound financial decisions<br>3.6 Analyse the usefulness and accuracy of located information |
| 4. Make transactions and participate online | 4.1 Create, register, manage and secure an account<br>4.2 Observe appropriate user protocol online<br>4.3 Make secure transactions and identify methods of internet fraud<br>4.4 Identify and invite relevant friends, groups and pages to own website |
| 5. Use applications and manipulate files | 5.1 Use basic application skills<br>5.2 Incorporate attachments to documents<br>5.3 Back up files to external storage devices<br>5.4 Upload relevant components to a website<br>5.5 Download pictures and videos to an external device |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.3, 2.5-2.7, 3.1, 3.6, 4.1 | • Recognises and comprehends a large range of signs, symbols, pictures, jargon, text, numbers and letters necessary to operate web browsers, operating systems, search engines and application packages, and to evaluate web page content |
| Writing | 2.1, 2.2, 2.8, 2.10, 3.2, 3.3, 4.1, 4.4 | • Enters text and data using keystrokes and adhering to the software program requirements<br>• Structures and orders search queries using relevant search conventions, jargon, acronyms, symbols and wildcards to obtain optimum search results |
| Navigate the world of work | 1.3, 2.3 | • Takes some personal responsibility for adherence to legal and regulatory requirements |
| Get the work done | 1.1-1.3, 2.1, 2.5-2.10, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1-4.4, 5.1-5.5 | • Plans routine tasks with familiar goals and outcomes, taking limited responsibility for decisions regarding sequencing<br>• Understands purpose and specific functions of common digital tools used in work contexts<br>• Takes responsibility for routine, low-impact decisions within familiar situations<br>• Implements basic security requirements related to own tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT108 Use digital literacy skills to access the internet | ICAICT108A Use digital literacy skills to access the Internet | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT108 Use digital literacy skills to access the internet

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- connect to and access the internet
- send and receive emails
- secure internet access and email communications
- use search tools to locate information or content
- research and select appropriate websites
- undertake online interactions
- make an informed assessment of the accuracy, currency, authority and reliability of the site and information located.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list types and basic components of hardware and storage devices
- list different categories of domain names and explain how they indicate the integrity of the materials on the web site
- identify and explain common automated messages found when accessing the web
- outline types of online communication and participation, including transactional
- outline basic research techniques
- outline basic copyright legislation
- explain digital footprint and basic security, safety and legal issues
- list work health and safety (WHS) issues, including basic ergonomics of keyboard and computer use
- identify device interfaces


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- Identify desk top icons
- explain basic principles of web browser search engines
- outline internet protocols
- explain basic principles and features of web browsers and search engines.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- hardware with internet access
- search engines currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT201 Use computer operating systems and hardware

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to select, configure and use computer operating systems and basic computer hardware, including configuring the operating system to work with a variety of hardware peripherals and types of information and communications technology (ICT) equipment.

It applies to individuals who may work under supervision and provide support to others using a range of skills to identify and resolve issues.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify operating system and hardware components | 1.1 Determine ICT organisational requirements and specifications<br>1.2 Identify and select the operating system<br>1.3 Identify appropriate external hardware components<br>1.4 Identify internal hardware components |
| 2. Install and configure | 2.1 Install and configure the operating system to meet |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| operating system and application software with hardware components | organisational requirements<br>2.2 Identify functions associated with the operating system and associated boot process<br>2.3 Configure power management settings to minimise power consumption, as an environmentally sustainable measure<br>2.4 Use both the graphical user interface and the command line interface to perform basic tasks<br>2.5 Install or upgrade application software onto the operating system and hardware configuration<br>2.6 Determine the relationship between an application program, the operating system and hardware<br>2.7 Identify general differences between different computer platforms and their respective operating systems |
| 3. Optimise operating system and hardware components | 3.1 Optimise operating system, using included tools or third-party utilities<br>3.2 Customise the graphical user interface<br>3.3 Use techniques unique to the command line interface<br>3.4 Set up and configure external hardware components and check functionality<br>3.5 Install drivers as appropriate and check functionality |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1-2.7, 3.1-3.5 | • Identifies and reviews both on-line and hard-copy text containing simple sentences with terminology relevant to the ICT industry<br>• Interprets and comprehends diagrams, icons, symbols, text, numbers and letters necessary to install and configure operating systems, software and hardware |
| Writing | 2.1, 2.4, 2.5, 3.3 | • Uses systems related syntax, text and numbers to input commands<br>• Uses correct terminology, text, letters and numbers to |


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| | | |
|---|---|---|
| | | respond to computer generated prompts |
| Get the work done | 1.1-1.4, 2.1-2.7, 3.1-3.5 | • Plans routine tasks with familiar goals and outcomes, taking limited responsibility for decisions regarding sequencing and timing<br>• Understands purposes, specific functions and key features of common digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT201 Use computer operations systems and hardware | ICAICT201A Use computer operations systems and hardware | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT201 Use computer operating systems and hardware

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use an operating system in a variety of scenarios and across functions, including:
  - scheduling, loading, initiating, and supervising the execution of programs
  - allocating storage
  - initiating and controlling input and output operations
  - handling errors
- identify and install suitable hardware components
- install and upgrade application software.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the basic specifications of current industry accepted operating systems, hardware and applications software products
- explain the compatibility of an operating system, in respect to other versions
- explain the function of single-user and multi-user operating systems
- explain interoperability between operating systems
- outline work health and safety (WHS) principles and responsibilities, including ergonomic principles to avoid injury associated with using computer systems.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- hardware components
- work health and safety (WHS) standards and organisational policy and procedures
- an operating system currently used in industry
- software configuration guides
- documents detailing operating system control panel and configuration data.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT202 Work and communicate effectively in an ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to work and communicate effectively within organisational policies and governance arrangements, using information and communications technology (ICT) systems, equipment and software.

It applies to individuals who may work under supervision with responsibility to support others within a small office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to communicate and work effectively within an ICT organisation | 1.1 Gather input from sources of information to develop, refine and document ICT roles and services in an organisation<br>1.2 Develop clear knowledge of enterprise policies, procedures and organisational requirements, including principles of equal employment opportunity (EEO) and anti-discrimination<br>1.3 Identify ICT policy and procedures, and determine whether |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | they are applied in practice<br>1.4 Determine key players within the organisation and their role and importance |
| 2. Use positive and varied communication strategies with ICT clients | 2.1 Receive requests and enquiries regarding use of ICT equipment, operating systems and software from clients and colleagues in a polite and appropriate manner<br>2.2 Respond appropriately to client and colleague requirements, and identify options<br>2.3 Present written information and ideas in clear and concise language to ensure the intended meaning is understood<br>2.4 Record information or messages and refer client requests to the appropriate person according to organisational procedures<br>2.5 Inform client of the progress of their request or enquiry and advise them of the organisational process for answering their request or enquiry<br>2.6 Escalate inquiries that cannot be satisfied immediately<br>2.7 Supply follow-up information to client as required in a timely manner<br>2.8 Accommodate cultural differences in the workplace |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.1 | • Reviews and evaluates a range of textual information to identify relevant information relating to the job role, enquiry and organisation |
| Writing | 1.1, 1.3, 2.2-2.4 | • Uses correct terminology, naming conventions and clear and detailed language to convey explicit information, requirements and recommendations<br>• Records key information in a sequential manner, using correct spelling and grammar in a format appropriate to audience |
| Oral | 1.1, 1.2, 1.4, | • Uses effective questioning and active listening techniques to elicit information about job roles and |


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| | | |
|---|---|---|
| Communication | 2.1-2.3, 2.5-2.8 | clarify client queries<br>• Contributes to an effective working environment by communicating with others in a timely and courteous manner and using clear, easy-to-understand and non-discriminatory language and behaviour |
| Navigate the world of work | 1.2 | • Takes some personal responsibility for adherence to legal and regulatory requirements |
| Interact with others | 2.7, 2.8 | • Seeks to cooperate with others to achieve results in immediate work context<br>• Selects from small range of communication modes, forms and channels to meet a specific purpose within the immediate work context |
| Get the work done | 1.1, 1.4 | • Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing<br>• Understands the purpose and specific functions of common digital tools used in work contexts<br>• Uses digital technology for basic reading, recording and searching information, and for communications following routine procedures and security requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT202 Work and communicate effectively in an ICT environment | ICAICT202A Work and communicate effectively in an IT environment | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT202 Work and communicate effectively in an ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- gather information about the organisation and incorporate in communications
- process internal and external requests according to organisational policies and requirements
- respond promptly to client enquiries and requests from colleagues.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe current industry accepted hardware and software including:
  - features and capabilities
  - product directions
- outline the operational environment, including the:
  - customer base
  - company products
  - services
- outline the organisational policies and procedures that cover:
  - code of conduct
  - mission statement
  - routine work processes
  - systems, management structure and governance arrangements
- outline the principles of equal employment opportunity (EEO) and anti-discrimination


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- explain the role and positioning of information and communications technology (ICT) within the overall business objectives of the organisation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a workstation
- a range of ICT equipment, operating systems, software and technical information
- organisational policies, procedures and governance documents.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT203 Operate application software packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify, select and operate three commercial software packages, including a word-processing and a spreadsheet application package.

It applies to individuals who utilise different software applications within a small to large office environment to produce diverse documents.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Use appropriate workplace health and safety (WHS) office work practices | 1.1 Use safe work practices to ensure ergonomic, work organisation, energy and resource conservation requirements are addressed<br>1.2 Use wrist rests and document holders where appropriate<br>1.3 Use monitor anti-glare and radiation reduction screens where appropriate |
| 2. Use appropriate | 2.1 Select word-processing software appropriate to perform |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| word-processing software | activity<br>2.2 Identify document purpose, audience and presentation requirements, and clarify with personnel as required<br>2.3 Identify organisational requirements for text-based business documents, and design document structure and layout to ensure consistency of style and image<br>2.4 Match document requirements with software functions to provide efficient production of documents<br>2.5 Use technical functions, other data and formatting to finalise documents<br>2.6 Ensure the naming and storing of documents in appropriate directories or folders and the printing of documents to the required specifications |
| 3. Use appropriate spreadsheet software | 3.1 Select spreadsheet software appropriate to perform activity<br>3.2 Identify document purpose, audience and presentation requirements, and clarify with personnel as required<br>3.3 Enter simple formulas and functions using cell referencing where required<br>3.4 Customise spreadsheet settings to meet requirements<br>3.5 Ensure the naming and storing of documents in appropriate directories or folders and the printing of documents to the required specifications |
| 4. Use a third application software package | 4.1 Select software application package appropriate to perform activity<br>4.2 Identify purpose, audience and presentation requirements, and clarify with personnel as required<br>4.3 Use technical functions, other data and formatting to finalise documents<br>4.4 Ensure documents are named and stored in appropriate directories or folders and printed to required specifications |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2-2.5, 3.2-3.4, 4.2, 4.3 | • Recognises and interprets textual information to determine organisational standards and job requirements<br>• Interprets and comprehends symbols, icons and text associated with applications software |
| Writing | 2.3-2.6, 3.3- 3.5, 4.3, 4.4 | • Enters both written and verbally received information and data into a format suitable for the software application<br>• Selects vocabulary, syntax, terminology, labelling and naming conventions suitable for the program |
| Oral Communication | 2.2, 2.3, 3.2, 4.2 | • Uses simple, relevant language, effective questioning, and active listening techniques to clarify work requirements |
| Numeracy | 3.2-3.4 | • Adds, subtracts, multiplies and divides whole numbers and decimals, identifying and selecting the correct formulas and functions to use<br>• Applies the order of operations in calculations |
| Navigate the world of work | 1.1 | • Takes some personal responsibility for adherence to legal and regulatory requirements |
| Get the work done | 1.2, 1.3, 2.1-2.6, 3.1-3.5, 4.1-4.4 | • Follows routine procedures for using digital technology to enter, store and retrieve information directly relevant to role<br>• Understands purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks, adapting some functions to improve personal efficiency<br>• Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT203 Operate application software packages | ICAICT203A Operate application software packages | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT203 Operate application software packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce workplace documents using a minimum of three different software application packages
- open, amend and save files and documents according to organisational requirements
- apply workplace health and safety (WHS) principles and responsibilities for ergonomics, such as work periods and breaks
- use help manuals and online help.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify application software packages used by the organisation and list the purpose of each
- explain basic technical terminology related to reading help files and responding to system help prompts
- outline current business practices related to using software to prepare reports
- list features and functions of commercial computing packages
- describe import and export software functions
- describe the process of linking documents
- outline WHS principles and responsibilities for ergonomics, such as work periods and breaks
- explain the purpose of input and output devices.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer (PC) and printer
- software currently used in industry
- documents detailing organisational style guide and policy
- documents or information containing data suitable for developing software application documents.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT204 Operate a digital media technology package

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify, select and use a digital media package and supporting technologies to produce a variety of media rich documents.

It applies to individuals who may work under supervision within a small to large office environment and have responsibility for completion of designated tasks, using a range of practical skills and basic technical knowledge.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Use appropriate workplace health and safety (WHS) office work practices | 1.1 Use safe work practices to ensure ergonomic, work organisation, energy and resource conservation requirements are addressed<br>1.2 Use wrist rests and document holders where appropriate<br>1.3 Use monitor anti-glare and radiation reduction screens where appropriate |
| 2. Identify and select | 2.1 Identify the basic requirements of a design brief, including |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| appropriate digital media package | user environment<br>2.2 Research and review suitable available digital media packages<br>2.3 Select an appropriate digital media package to meet design brief requirements |
| 3. Use digital media package | 3.1 Procure or create suitable data to meet requirements of the brief<br>3.2 Manipulate data using digital media package tools<br>3.3 Ensure naming and storing of documents in appropriate file format in directories or folders |
| 4. Review digital media design | 4.1 Evaluate design for creative, dramatic and technical quality, file size, and suitability to meet the brief<br>4.2 Test and run any incorporated graphics, video or sound as part of a digital media presentation and present designs in the appropriate format<br>4.3 Review final product against design brief |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2, 3.1, 3.3, 4.3 | • Recognises and interprets textual and diagrammatic information to select appropriate digital media packages<br>• Interprets systems related icons, text and diagrams |
| Writing | 3.1-3.3 | • Enters written and verbally received information and data into a format suitable for the digital media package<br>• Selects vocabulary, syntax, terminology, labelling and naming conventions to meet program and design requirements |
| Numeracy | 3.1, 3.2 | • Adds and subtracts whole numbers, fractions and decimals to calculate time, audio output, graphic dimensions and file size |
| Navigate the world of | 1.1 | • Takes some personal responsibility for adherence to legal and regulatory requirements |


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| | | |
|---|---|---|
| work | | |
| Get the work done | 1.1-1.3, 2.1- 2.3, 3.1-3.3, 4.2 | • Follows routine procedures for using digital technology to enter, store and retrieve information directly relevant to role<br>• Understands purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks, adapting some functions to improve personal efficiency<br>• Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT204 Operate a digital media technology package | ICAICT204A Operate a digital media technology package | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT204 Operate a digital media technology package

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- interpret basic requirements of a design brief
- use digital media package to meet organisational requirements
- apply workplace health and safety (WHS) principles and responsibilities for ergonomics, such as work periods and breaks
- use help manuals and online help when appropriate
- use digital media technologies to support design brief requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the basic principles of visual design
- outline the functions and features of digital media packages and technologies
- identify graphic design and stylistic language conventions
- outline WHS principles and responsibilities for ergonomics, such as work periods and breaks
- outline the principles of digital imaging and file formats, video and sound file formats, file management and transfer systems
- identify vendor product directions in digital media hardware and software
- explain how to visualise and interpret creative information, scripts (text) and images.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer (PC) and printer
- software currently used in industry
- documents detailing organisational style guide and policy
- documents or information containing data suitable for developing software application documents.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT205 Design basic organisational documents using computing packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, create and produce basic organisational documents using application software within organisational guidelines, procedures and policies.

It applies to individuals who need to use foundation information and communications technology (ICT) skills in a wide range of varying industry occupations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Design documents to meet organisational needs | 1.1 Determine basic design guidelines and requirements<br>1.2 Select appropriate application software<br>1.3 Use application software to design and configure document templates for use in a business environment |
| 2. Use application software to develop | 2.1 Use application software as per specifications to develop documents |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| documents | 2.2 Access, retrieve, manipulate and save document files<br>2.3 Amend designs according to organisational requirements<br>2.4 Store documents for wider access and editing as required |
| 3. Evaluate and incorporate feedback | 3.1 Obtain document sign-off from appropriate person<br>3.2 Incorporate feedback and update document |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 3.2 | • Recognises and interprets text to determine organisational guidelines and requirements, and application software specifications |
| Writing | 1.3, 2.1, 3.2 | • Uses appropriate and clear language and organisational protocols for labels and filenames when designing templates and developing documents |
| Oral Communication | 1.1, 3.1 | • Uses simple, relevant language, effective questioning, and active listening techniques to clarify work requirements and obtain feedback |
| Numeracy | 1.3, 2.1, 2.3 | • Takes measurements and performs calculations for document layout |
| Get the work done | 1.2, 1.3, 2.1-2.4, 3.2 | • Follows routine procedures for using digital technology to enter, store and retrieve information directly relevant to role<br>• Understands purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks, adapting some functions to improve personal efficiency<br>• Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing<br>• Uses the main features and functions of digital tools to complete work tasks and access information |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT205 Design basic organisational documents using computing packages | ICAICT205A Design basic organisational documents using computing packages | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT205 Design basic organisational documents using computing packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce a workplace document using a range of features
- develop several workplace documents with minimal instruction on their design from end user or supervisor.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify features of application packages
- explain current business practices related to preparing organisational documents
- recognise industry standard input and output devices
- identify organisational documentation and style guides
- identify organisational storage and retrieval procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- organisational requirements and a template for the documents
- a personal computer (PC), scanner and laser printer
- word-processing facilities
- presentation software applications.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT206 Install software applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to select, install or upgrade basic commercial software applications.

It applies to individuals who require basic information and communications technology (ICT) skills to undertake related tasks under supervision.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine software or software upgrade requirements | 1.1 Document client requirements and report to appropriate person<br>1.2 Act on instructions to meet client requirements, according to organisational requirements |
| 2. Obtain software or software upgrade | 2.1 Investigate and select a software application program that best conforms to requirements and organisational policies<br>2.2 Obtain application program under instruction from appropriate person |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Determine licensing requirements and record, according to organisational guidelines<br>2.4 Ensure target computer conforms to the minimum hardware and operating system requirements of the application program |
| 3. Install or upgrade software | 3.1 Install new or upgraded software application program according to appropriate person or organisational instructions<br>3.2 Complete the installation process efficiently and effectively to minimise disruption<br>3.3 Carry out testing and acceptance, according to organisational guidelines, paying particular attention to possible effect on other systems<br>3.4 Ensure client requirements are satisfied<br>3.5 Refer outstanding client issues to appropriate person as necessary |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.3 | • Uses available literature to appropriately address requirements<br>• Interprets and responds to complex text to ascertain and confirm requirements |
| Writing | 1.1, 2.3 | • Records key information relevant to requirements, using basic punctuation, text and correct spelling |
| Oral Communication | 1.1, 2.2, 3.1, 3.4, 3.5 | • Uses listening and questioning techniques to confirm understanding of requirements<br>• Uses clear and specific language to convey requirements |
| Navigate the world of work | 2.1 | • Takes some personal responsibility for adherence to organisational requirements |
| Get the work done | 1.2, 2.1, 2.2, 2.4, 3.1-3.3 | • Follows routine procedures for using digital technology to enter, store and retrieve information directly relevant to role<br>• Understands purposes, specific functions and key |


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| | | |
|---|---|---|
| | | features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT206 Install software applications | ICAICT206A Install software applications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT206 Install software applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install software applications through operating system instructions
- configure computer to accept new software or upgrade
- carry out testing and acceptance according to organisational guidelines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe a typical client business domain
- identify typical hardware storage devices
- identify typical input and output devices
- describe key licensing arrangements and responsibilities to ensure they are adhered to
- identify operating systems supported by the organisation
- describe the organisational guidelines for purchasing
- identify the installation requirements for key software application packages
- describe typical software copyright responsibilities.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer (PC) where software installation may be performed


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- application software currently used in industry
- documents detailing organisational testing and acceptance policy and procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT207 Integrate commercial computing packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manipulate, convert and integrate data between two or more different commercial software applications.

It applies to individuals who require foundation skills and knowledge to use information and communications technology (ICT) in any ICT business or office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine work requirements | 1.1 Identify the task requirement<br>1.2 Select appropriate software and file formats to perform required work<br>1.3 Obtain organisational documentation, such as procedures, manuals and guides, and use when appropriate |
| 2. Integrate data across different software application packages | 2.1 Create a mailing list using a database, spreadsheet or address book, and merge mailing list with another document<br>2.2 Use software application package conversion tool to convert |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | data from one format to another to enable additional work on the converted data<br>2.3 Save data to a new file format<br>2.4 Import objects from another software application package and modify as required to produce a required outcome<br>2.5 Export data to another software application package to produce a required outcome<br>2.6 Create a link between one software application package and another, and use this to update information to a document |
| 3. Save and retrieve data with the aid of help functions | 3.1 Save data to disk<br>3.2 Convert data to a new file format<br>3.3 Re-access data and check information<br>3.4 Access user help documentation or other resources for basic difficulties with software application package |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 3.4 | • Recognises and interprets text with ICT specific terminology to determine task requirements, organisational guidelines and use application software |
| Oral Communication | 1.1, 3.4 | • Uses effective listening and questioning techniques to elicit information about task requirements to resolve basic difficulties |
| Navigate the world of work | 1.3 | • Generally follows the explicit protocols immediately related to role |
| Get the work done | 1.1, 1.2, 2.1- 2.3, 2.5, 2.6, 3.1-3.3, 3.4 | • With assistance, determines priorities and sequences the steps involved in clearly defined, familiar tasks, and identifies and assembles the resources required<br>• Recognises and responds to predictable routine problems related to role in the immediate work |


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| | | |
|---|---|---|
| | | context<br>• Understands the purpose and specific functions of common digital tools used in work contexts<br>• Follows routine procedures for using digital technology to enter, store and retrieve information directly relevant to role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT207 Integrate commercial computing packages | ICAICT207A Integrate commercial computing packages | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT207 Integrate commercial computing packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select appropriate software and file formats
- create mailing list and merge with another document
- manipulate and integrate data between commercial application software following organisational procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline current business practices related to preparing reports
- identify features and functions of commercial computing packages
- identify import and export software functions
- outline processes for linking documents
- outline workplace health and safety (WHS) principles and responsibilities for ergonomics
- identify software packages used by the organisation
- outline strategies for integrating commercial computing packages
- outline the use of input and output devices.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:


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- a personal computer (PC) and printer
- software currently used in industry
- documents detailing organisational style guide and policy
- documents or information containing data suitable for use with multiple computing packages.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT208 Operate accounting applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to operate common accounting software packages in order to maintain enterprise financial records.

It applies to individuals working with little supervision who use information and communications technology (ICT) skills and knowledge to support the financial area within a small to large office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Customise software | 1.1 Select accounting software to meet business requirements<br>1.2 Load, register and configure accounting software according to operating instructions |
| 2. Create enterprise data | 2.1 Establish chart of accounts according to business and legislative requirements<br>2.2 Create and add data on customers and sales |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Create and add data on suppliers and purchases<br>2.4 Create and add payroll details<br>2.5 Create and add inventory details<br>2.6 Add required or suitable tax codes |
| 3. Record and track transactions | 3.1 Generate invoices and track their progress<br>3.2 Record customer payments and update customer details<br>3.3 Record and track purchases<br>3.4 Record payment of wages, allowances, taxation and superannuation<br>3.5 Update business data as required |
| 4. Save and back up data | 4.1 Save accounting data to disk<br>4.2 Make a regular backup of accounting data and store in a safe location |
| 5. Generate reports | 5.1 Reconcile accounts<br>5.2 Generate and print financial reports based on accounting data<br>5.3 Check financial reports for errors and discrepancies<br>5.4 Discuss errors with appropriate person and rectify as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 5.3, 5.4 | • Identifies and interprets textual and numerical financial information necessary to maintain organisational accounting records<br>• Interprets textual information from relevant sources to identify the most appropriate software to use, and business and legislative requirements |
| Oral | 1.1, 1.2, 2.1, 5.4 | • Uses plain English, effective listening and questioning techniques and, where necessary, |


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| | | |
|---|---|---|
| Communication | | finance specific terminology to elicit information and discuss issues |
| Numeracy | 2.1-2.6, 3.1-3.5, 5.1-5.4 | • Interprets numerical information containing whole numbers, decimals and percentages, and applies a range of mathematical calculations to ensure organisational financial requirements are met |
| Navigate the world of work | 2.1 | • Appreciates the implications of legal and regulatory responsibilities related to own work |
| Get the work done | 1.1, 1.2, 2.2- 2.6, 3.1-3.5, 4.1, 4.2, 5.1, 5.4 | • Plans a range of routine and some non-routine tasks, accepting stated goals and aiming to achieve them efficiently<br>• Understands the purpose, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Uses familiar digital systems and tools to access, organise, analyse and display information relevant to role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT208 Operate accounting applications | ICAICT208A Operate accounting applications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT208 Operate accounting applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- load and configure accounting software
- create and maintain enterprise financial records as per business and legislative requirements
- record and track transactions
- back up data
- reconcile accounts and generate reports.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss basic accounting concepts, including:
  - assets
  - cost of sales
  - creditors
  - debtors
  - equity
  - expenses
  - income
  - liabilities
- identify basic accounting devices, including:
  - accounts
  - chequebook register


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  - general ledger
  - invoices
  - purchases
  - sales journals
  - transaction journals
- outline current legislative requirements relating to enterprise requirements, including:
  - goods and services tax
  - income tax rates
  - pay as you go
  - superannuation
- discuss the features and functions of common accounting reports, including:
  - balance sheet
  - business activity statements
  - chart of accounts
  - profit and loss
- outline the features and functions of common accounting software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a printer and personal computer (PC) with appropriate specifications to run the software
- industry standard commercial accounting applications
- documents detailing business requirements
- legislative requirements if required.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT209 Interact with ICT clients

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to provide routine information and communications technology (ICT) support to clients in a professional manner.

It applies to individuals who, while working under a level of supervision, have responsibility in a frontline technical support capacity to exercise discretion and judgement using appropriate knowledge to provide assistance.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Deliver support to ICT clients | 1.1 Provide support for ICT clients in a courteous and professional manner according to organisational policy<br>1.2 Establish and confirm nature of client's ICT concerns using active listening and questioning<br>1.3 Maintain client contact and provide progress information until the problem is resolved |
| 2. Respond to ICT client | 2.1 Respond to ICT client's concerns and issues, demonstrating |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| complaints | a positive, sensitive and helpful attitude<br>2.2 Escalate and refer client concerns to support person if required, explaining the nature of issues involved<br>2.3 Resolve ICT client complaint using recommendations from the support person<br>2.4 Document and record ICT client concerns and solutions, according to organisational guidelines |
| 3. Evaluate received ICT client complaints | 3.1 Analyse recent ICT register<br>3.2 Propose proactive training to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.1 | • Evaluates textual information containing ICT specific terminology to establish proactive training needs |
| Writing | 2.4 | • Completes documentation necessary for work tasks and reporting requirements by using clear, concise and accurate grammar and language, and relevant ICT terminology |
| Oral Communication | 1.1-1.3,2.1-2.3, 3.2 | • Uses effective questioning and active listening techniques to elicit information and clarify client queries, concerns and complaints<br>• Contributes to an effective working environment by communicating in a courteous manner and using clear, easy-to-understand and non-discriminatory language and behaviour |
| Navigate the world of work | 1.1 | • Generally follows the explicit protocols immediately related to own role |
| Get the work done | 1.3, 2.3, 3.1 | • Recognises and responds to predictable routine problems related to role in the immediate work context<br>• Uses the main features and functions of common digital tools in everyday work contexts |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalent status** |
|---|---|---|---|
| ICTICT209 Interact with ICT clients | ICAICT209A Interact with ICT clients | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT209 Interact with ICT clients

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- provide routine information and communications technology (ICT) client support in a professional manner
- refer client concerns to support person if required, according to escalation procedures
- resolve client complaints
- document and record client concerns and solutions according to organisational guidelines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list current industry accepted hardware and software products, and describe their general features and capabilities
- describe the ICT client business domain and business critical functions
- discuss the organisational systems and working environment
- outline organisational policies for external and internal client contact.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a personal computer
- relevant organisational guidelines
- relevant documentation


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- a site where routine ICT client support may be demonstrated.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT210 Operate database applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to operate database applications and create and develop simple relational databases using pre-existing data.

It applies to individuals who provide administrative support working under direct supervision or with limited responsibility within a wide range of industry occupations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Create database | 1.1 Open a database application and design a two-table, simple relational database incorporating basic design principles<br>1.2 Develop a table with fields and attributes according to database usage, as well as user requirements<br>1.3 Create a primary key and establish an index for each table<br>1.4 Modify table layout and field attributes as required<br>1.5 Create a relationship between the two tables<br>1.6 Add and modify data in a table according to information |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements<br>1.7 Add and delete records as required<br>1.8 Save and close down database to storage area |
| 2. Customise basic settings | 2.1 Adjust page layout to meet user requirements<br>2.2 Open and view different toolbars<br>2.3 Format font as appropriate for the purpose of the database entries |
| 3. Create reports | 3.1 Design reports to present data in a logical sequence<br>3.2 Modify reports to include or exclude additional requirements<br>3.3 Distribute reports to appropriate person in a suitable format |
| 4. Create forms | 4.1 Use a wizard to create a simple form<br>4.2 Open existing database and modify records through a simple form<br>4.3 Rearrange objects within the form to accommodate information requirements |
| 5. Retrieve information | 5.1 Access existing database and locate required records<br>5.2 Create simple query and retrieve required information<br>5.3 Develop query with multiple criteria and retrieve required information<br>5.4 Select data and display appropriately |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 5.1 | • Identifies and analyses a wide range of hard copy and on-line forms, reports and other end-user documentation to identify end-user needs and data |
| Writing | 1.2, 3.1, 3.2, 4.1, 4.3, 5.2, 5.3 | • Uses database related terminology and protocols when designing tables, queries, reports and forms |


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| | | |
|---|---|---|
| | | • Uses clear plain English appropriate for end-users when labelling fields within reports and forms |
| Oral Communication | 1.2, 3.3 | • Uses simple, relevant language, effective questioning, and active listening techniques to clarify user requirements, confirm understanding and when liaising with the appropriate person |
| Numeracy | 5.3 | • Identifies and comprehends the specific numeric data needed, and uses logical functions, mathematical symbols and applies the order of operations in calculations when developing queries |
| Interact with others | 3.3 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.1-1.8, 2.1-2.3, 3.1,3.2, 4.1-4.3, 5.1-5.4 | • Plans a range of routine tasks and aims to achieve them efficiently<br>• Takes responsibility for routine, low-impact decisions within familiar situations<br>• Begins to identify and implement standard solutions for a number of routine problems<br>• Understands the purpose and specific functions of common digital tools used in work contexts<br>• Follows routine procedures for using digital technology to enter, store and retrieve information directly relevant to role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT210 Operate database applications | ICAICT210A Operate database applications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT210 Operate database applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design and develop a simple database using a standard database package
- add data
- create and use a query with multiple criteria
- create and modify reports and forms.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline basic database design principles
- discuss the purposes of forms, reports and queries for retrieving and displaying information
- outline the reasons for relationships between tables (cardinality)
- describe the purpose, use and function of database software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry and include access to:

- a PC and printer
- database software currently used in industry
- documents detailing organisational style guide and policy


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- documents or information containing data suitable for creating a database.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT211 Identify and use basic current industry specific technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to engage in basic ongoing review and research of industry specific technologies in order to identify and apply these technologies or techniques to improve aspects of an organisation's activities.

It applies to individuals who work under minimal supervision and are responsible for ensuring that the quality of the business process is maintained at the highest level possible, through the appropriate application of industry specific technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use basic industry specific technologies | 1.1 Identify technologies specific to an industry sector<br>1.2 Acquire and use the industry specific technologies<br>1.3 Identify, classify and use industry specific technologies for the benefit of the organisation |
| 2. Use basic industry | 2.1 Conduct testing of industry specific technologies |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| specific technologies to assist in solving organisational problems | 2.2 Use features and functions of industry specific technologies within an organisational context<br>2.3 Demonstrate depth of knowledge of enabling technologies to an accepted industry standard<br>2.4 Access and use sources of information relating to the industry specific technologies |
| 3. Evaluate performance of basic industry specific technology | 3.1 Evaluate industry specific technologies for performance, usability and benefit to the organisation<br>3.2 Determine environmental considerations involved when using the technology<br>3.3 Seek feedback from users where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.1-1.3, 2.3, 2.4 | • Investigates, evaluates and applies information from a range of complex and technical texts to expand own knowledge and identify industry specific technologies that will benefit the organisation |
| Reading | 1.1, 1.3, 2.1, 2.4, 3.2, 3.3 | • Identifies and interprets technical online and hard copy documentation containing complex terminology and diagrams to identify industry specific technologies that will benefit the organisation, and to determine environmental considerations |
| Oral Communication | 1.1-1.3, 2.4, 3.1-3.3 | • Elicits information and feedback by using effective listening and questioning techniques to identify and evaluate industry specific technologies<br>• Uses clear, easy-to-understand language, and translates industry specific terminology into plain English where necessary |
| Navigate the world of work | 2.3, 3.2 | • Recognises organisational expectations and follows explicit protocols and procedures |
| Get the work done | 1.1-.3, 2.1-2.4, 3.1 | • Determines priorities and sequences the steps involved in clearly defined familiar tasks, and |


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| | | |
|---|---|---|
| | | identifies and assembles the resources required<br>• Demonstrates the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT211 Identify and use basic current industry specific technologies | ICAICT211A Identify and use basic current industry specific technologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT211 Identify and use basic current industry specific technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify basic new and emerging industry specific technologies and techniques
- use basic features and functions of identified industry specific technologies to an industry standard.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline current technology trends and directions in information and communications technology (ICT), and specifically of the major industry technology standards used in the specified area
- outline vendor product directions
- describe current industry hardware and software products, with broad knowledge of general features and capabilities, and their application
- outline information gathering techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a site where industry specific technologies may be used
- industry specific technologies currently used in industry
- documents detailing work health and safety (WHS) standards, environmental guidelines and organisational requirements.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT212 Incorporate Indigenous needs and perspectives into ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify and use current information and communications technology (ICT) within Indigenous communities and to research and discuss alternative ICT solutions that meet the specific needs of Indigenous learners.

It applies to individuals who work with Indigenous people and communities under a level of supervision and use a range of specialised technical knowledge and knowledge of Indigenous learning styles and systems to provide advice.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Note: delivery and assessment against this unit of competency must comply with Indigenous community protocols and guidelines, and be supported by Elders or custodians of Country.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the use of ICT systems in the Indigenous | 1.1 Identify local community organisations, including Indigenous community organisations and other relevant |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| community | Indigenous and related agencies, that use ICT<br>1.2 Determine specific Indigenous learning styles, knowledge systems and relevant legislation that impact on the use of ICT in an Indigenous community<br>1.3 Identify the most common communication technologies, software applications and hardware solutions used in the local community<br>1.4 Identify the use of ICT in local community organisations, including Indigenous community organisations and other relevant bodies |
| 2. Identify and use specific ICT resources relevant to Indigenous people | 2.1 Identify a range of methods of accessing Indigenous and non-Indigenous electronic resources for research and learning<br>2.2 Identify and access relevant Indigenous and ICT websites and other online resources<br>2.3 Following community consultation, discuss and compare the relevance of a range of Indigenous websites to Indigenous communities |
| 3. Identify appropriate ICT resources to meet the needs of Indigenous people and communities | 3.1 Use the most common local communication technologies, software applications and hardware solutions<br>3.2 Research and identify possible alternative communication technologies, software applications and hardware solutions<br>3.3 Discuss most appropriate ICT resources with local Indigenous community, to meet Indigenous individual and community needs |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 3.2 | • Recognises and interprets both hard copy and on-line texts from both Indigenous and non-Indigenous sources to obtain information about the use of ICT in Indigenous communities |
| Oral | 1.1-1.4, 2.1-2.3, | • Uses effective questioning and active listening techniques to elicit information |


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| | | |
|---|---|---|
| Communication | 3.2, 3.3 | • Uses specific language and applies appropriate communication skills to ensure satisfactory interactions with Indigenous community members<br>• Participates in a verbal exchange of ideas/solutions and uses detailed and clear language to clarify and present information |
| Get the work done | 1.3, 2.1, 2.2, 3.1 | • Begins to identify and assemble resources required to undertake the role<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalent status** |
|---|---|---|---|
| ICTICT212A Incorporate Indigenous needs and perspectives into ICT environment | ICAICT212A Incorporate Indigenous needs and perspectives into IT environment | Updated to meet Standards for Training Packages.<br><br>Minor edits to title and clarify intent of performance criteria. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT212 Incorporate Indigenous needs and perspectives into ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify common communication technologies, software applications and hardware solutions used in the local Indigenous community
- identify specific Indigenous customs and practices that impact on the use of information and communications technology (ICT) within the community
- use current communication technologies, software applications and hardware solutions
- consult with relevant Indigenous community members and develop alternative ICT solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide a summary of operating system, hardware and software products
- discuss ergonomic principles to avoid back, wrist and eye strain
- discuss work health and safety (WHS) principles and responsibilities relating to ICT specific to Indigenous community customs and practices
- identify important indigenous cultural communications attributes.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a PC
- relevant hardware components


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- WHS standards and organisational policies and procedures
- relevant software applications
- common communication technologies.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT301 Create user documentation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create user documentation that is clear to the target audience and easy to navigate.

It applies to individuals who may work under supervision with responsibility to support others in a range of information and communications technology (ICT) areas.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine documentation standards and requirements | 1.1 Determine documentation requirements<br>1.2 Investigate documentation and industry standards for requirements, and determine appropriate application to user documentation<br>1.3 Design documentation templates using appropriate software and obtain approval from appropriate person |
| 2. Produce user documentation | 2.1 Conduct a review of the subject system, program, network or application in order to understand its functionality |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Gather existing technical, design or user specifications and supporting documentation<br>2.3 Create user documentation based on the template to record the operation of the subject system, program, network or application |
| 3. Review and obtain sign-off | 3.1 Submit user documentation to target audience for review<br>3.2 Gather and analyse feedback<br>3.3 Make changes to user documentation<br>3.4 Submit user documentation to appropriate person for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 3.2 | • Identifies and interprets textual, numeric and diagrammatic information with ICT specific syntax, terminology and formatting to determine and understand job requirements |
| Writing | 1.3, 2.3, 3.3 | • Uses correct spelling, grammar and plain English together with the ICT specific terminology in the required format, incorporating, diagrams, icons and syntax related to the subject matter |
| Oral Communication | 1.1, 1.2, 2.1, 3.1, 3.2, 3.4 | • Elicits and evaluates information using effective listening and questioning techniques<br>• Uses simple and relevant language to confirm understanding of requirements, identify the audience, present information and obtain feedback |
| Navigate the world of work | 1.2 | • Takes some personal responsibility for adherence to legal and regulatory requirements |
| Get the work done | 1.1, 1.3, 2.1, 2.2 | • Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Plans routine tasks with familiar goals and |


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| | | |
|---|---|---|
| | | outcomes, taking some limited responsibility for decisions regarding sequencing and timing |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT301 Create user documentation | ICAICT301A Create user documentation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT301 Create user documentation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce user documentation that:
  - meets business requirements
  - caters for a diverse audience
  - is clear and easy to navigate.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify content features, including clarity and readability
- discuss document design, web design and usability
- list the functions and features of templates and style guides.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry and include access to:

- documentation standards
- software tools for creating documentation
- information about the system, platform, network or application being documented.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT302 Install and optimise operating system software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit defines the skills and knowledge required to install, configure and optimise operating system (OS) software to meet business and client needs.

It applies to individuals who may work under supervision and support others using well developed skills in creating solutions through analysis and evaluation of information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine function of operating system | 1.1 Identify and demonstrate understanding of the purposes of operating system<br>1.2 Distinguish between batch system, real-time system and multi-tasking system<br>1.3 Compare and contrast different operating systems and their features<br>1.4 Identify and demonstrate knowledge of the basic functions of operating system, including file system, memory |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | management, process scheduling<br>1.5 Identify and demonstrate management of virtual memory |
| 2. Obtain operating system | 2.1 Contact operating system vendors to obtain technical specifications and system requirements<br>2.2 Identify process and steps required to install and configure the operating system using installation components<br>2.3 Document adjustment recommendations and provide to appropriate person<br>2.4 Determine and apply knowledge of licensing, hardware and security requirements |
| 3. Install, configure and optimise operating system | 3.1 Install, configure and test operating system using installation components and boot-utility options<br>3.2 Use the relevant operating system user interface to correctly configure the installation<br>3.3 Optimise the system to meet organisational requirements<br>3.4 Document the system according to organisational requirements<br>3.5 Install the operating system with minimal disruption to client or users |
| 4. Provide instruction to meet new software requirements | 4.1 Provide one-to-one instruction about changes to the client or users as required<br>4.2 Obtain client evaluation about new system to ensure requirements are met, using appropriate feedback mechanism |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3-1.5, 2.1, 2.2, 2.4, 3.1, 3.2, 4.2 | • Identifies, analyses and evaluates a range of on-line and hard-copy text containing complex, OS specific terminology, and applies the information to the selection, installation, configuration and optimisation of operating systems |


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| | | |
|---|---|---|
| | | • Interprets and comprehends a large range of syntax, diagrams, icons, symbols, text, numbers and letters necessary to install and configure operating systems |
| Writing | 2.3, 3.4 | • Uses the correct spelling and grammar, clear plain English and systems related text to document recommendations and processes, and develop feedback tools |
| Oral Communication | 2.1, 3.5, 4.1, 4.2 | • Elicits and evaluates information using OS related terminology and effective listening and questioning techniques<br>• Uses simple and relevant language to liaise with clients, present information and obtain feedback |
| Navigate the world of work | 2.4 | • Takes some personal responsibility for adherence to legal and regulatory requirements, and seeks clarification when required |
| Get the work done | 1.1-1.5, 2.1, 2.2, 3.1-3.3, 3.5 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency and considering how to link with the work of others<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT302 Install and optimise operating system software | ICAICT302 Install and optimise operating system software | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT302 Install and optimise operating system software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install, configure and test an operating system to improve system performance with minimum disruption to clients.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare current industry accepted hardware and software products
- outline functions and features of operating systems used by the organisation
- explain the installation and configuration of systems software
- explain the architecture of current technical systems
- outline the deployment of current organisational systems
- list organisational requirements for operating system (OS) software
- explain prerequisites for system software installation
- outline set-up and configuration procedures
- list software packages supported by the organisation
- describe system’s current functionality
- list system’s diagnostic software
- outline vendor specifications and requirements for installation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer where installation may be performed
- OS software and technical documentation
- organisational documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT303 Connect internal hardware components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to acquire, install, configure and evaluate system hardware components according to client and user requirements.

It applies to individuals who work with a degree of self-sufficiency and provide support in a range of information and communications technology (ICT) work areas and activities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify, categorise and distinguish between the different types of internal hardware components | 1.1 Identify and categorise the different internal hardware components<br>1.2 Define the purpose and characteristics of the different internal hardware component categories<br>1.3 Distinguish between different types of devices within each internal hardware component category |
| 2. Determine components required | 2.1 Identify and clarify user internal hardware component requirements according to organisational guidelines |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Organise and record user component requirements, pass on to appropriate person for evaluation and vendor selection |
| 3. Obtain components | 3.1 Contact vendors to obtain technical specifications for the proposed components<br>3.2 Assess options and provide recommendations to the appropriate person for final analysis<br>3.3 Obtain components to prepare for installation |
| 4. Install components | 4.1 Develop plans, with prioritised tasks and contingency arrangements, for the installation of selected components with minimum disruption to clients<br>4.2 Liaise with appropriate person to obtain approval for the plans<br>4.3 Install and configure components according to plan, installation procedures and organisational requirements<br>4.4 Test components for error-free performance, using available technology<br>4.5 Identify and resolve identified problems<br>4.6 Test and enhance system performance, using knowledge of the system, to meet organisational benchmarks<br>4.7 Document the installation and configuration process according to organisation guidelines |
| 5. Evaluate modified system | 5.1 Collect client or user feedback and analyse against client requirements<br>5.2 Correct identified shortcomings in the system and record actions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 3.2, 4.3, 5.1 | • Identifies, interprets and evaluates online and hard copy documentation containing complex ICT related terminology, acronyms and concepts |


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| | | |
|---|---|---|
| Writing | 2.2, 3.2, 4.1, 4.7 | • Uses correct spelling, grammar and plain English together with the ICT specific terminology and diagrams to convey recommendations and requirements, and complete organisational documentation |
| Oral Communication | 1.1, 2.2, 3.1-3.3, 4.1, 4.2, 5.1 | • Converts highly technical language and terminology into plain English to communicate ideas and plans, and gather feedback from clients<br>• Uses effective listening and questioning techniques and technical terminology to elicit information and make the correct component selection |
| Navigate the world of work | 2.1, 4.3 | • Recognises and follows explicit protocols and meets expectations associated with own role |
| Get the work done | 1.1, 1.3, 2.1, 2.2, 3.2, 3.3, 4.1, 4.4-4.6, 5.1, 5.2 | • Initiates standard procedures when responding to familiar problems within immediate context<br>• Recognises some general design and operating principles of digital tools and uses these to help when modifying systems and when troubleshooting<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT303 Connect internal hardware components | ICAICT303A Connect internal hardware components | Updated to meet Standards for Training Packages.<br><br>Minor edits to clarify intent of performance criteria. | Equivalent unit |


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# Assessment Requirements for ICTICT303 Connect internal hardware components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and categorise the different types of internal hardware components
- modify system's hardware to meet client requirements
- plan modification of and connect internal hardware components according to vendor and technical specifications
- install components across a variety of situations and account for unexpected contingencies
- evaluate the system on completion.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe areas of the operating system relevant to configuration and testing
- compare current industry accepted hardware and software products
- outline environmental considerations in e-waste disposal
- outline organisational guidelines and organisational requirements with regard to safety, recycling and component installation
- outline system's diagnostic software and current functionality
- interpret vendor specifications and requirements for component installation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:


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- a personal computer and internal hardware components for installation
- current industry standard performance testing software
- documents detailing organisational guidelines and requirements
- technical manuals and tools.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT304 Implement system software changes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement system software changes and to hand over the modified system to the client's operational area.

It applies to individuals working in support roles who are required to update operating systems on client computers with the latest technology fixes, working under minimum supervision.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine system changes required | 1.1 Determine and record required changes to system<br>1.2 Ensure documentary evidence exists to support changes and evaluate changes required<br>1.3 Complete documentation required according to maintenance methodologies<br>1.4 Clarify and confirm nature of the changes with the client<br>1.5 Obtain technical data from reliable sources and request |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | other resources that may be required to complete the changes |
| 2. Carry out system changes | 2.1 Plan the procedure to effect intended changes<br>2.2 Consult with colleagues and users involved in the proposed changes and agree a mutually acceptable timeline and method of implementation<br>2.3 Copy initialisation or configuration files prior to implementation<br>2.4 Create a roll-back path in the event of failure<br>2.5 Ensure changes required in software are made according to project or organisational guidelines<br>2.6 Test and verify that the changes have been made according to implementation guides and organisational standards |
| 3. Present changes to client | 3.1 Demonstrate changes to the client and explain the impact of these changes<br>3.2 Work towards making these changes acceptable to the client if changes are rejected, or making further modifications if required<br>3.3 Update documentation and repositories according to standards and update modifications made to the change management system |
| 4. Perform handover to client | 4.1 Update documentation and client procedures to reflect changes made<br>4.2 Secure sign-off of acceptance documents by client<br>4.3 Facilitate handover of modified system to client's operational area |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.5 | • Identifies and interprets hard copy, online and computer generated text, numerical and diagrammatic information with systems |


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| | | |
|---|---|---|
| | | software specific terminology<br>• Reviews a range of organisational documentation to identify relevant information relating to the requirements of both the job role and organisation |
| Writing | 1.1, 1.3, 3.3, 4.1 | • Uses correct spelling and grammar, plain English and, when necessary, systems related text and terminology to complete documentation and update client procedures |
| Oral Communication | 1.1, 1.2, 1.4, 1.5, 2.1, 2.2, 3.1, 3.2, 4.2, 4.3 | • Uses effective listening and questioning techniques and systems related terminology to elicit information about the systems and determine the job requirements<br>• Converts highly technical language and terminology to plain English to communicate changes to, and gather feedback from, the client(s) |
| Navigate the world of work | 2.5, 2.6, 3.3 | • Recognises and follows explicit protocols and meets expectations associated with own role |
| Get the work done | 1.1, 2.1-2.4, 2.6, 3.2, 3.3, 4.3 | • Initiates standard procedures when responding to familiar problems within immediate context<br>• Recognises some general design and operating principles of digital tools and uses these to help when modifying systems and when troubleshooting<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT304 Implement system software changes | ICAICT304A Implement system software changes | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT304 Implement system software changes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate, document and implement changes to the system with minimum disruption to the system and client users
- hand over the project to the client with instructions and updated documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe business scheduling requirements
- identify change control procedures
- describe client business domain
- discuss current industry accepted hardware and software products
- discuss emerging standards for data and voice communications
- outline the system's current functionality
- discuss the features of the system under modification
- outline the organisational policy and procedures with regard to system changes
- recognise vendor software services with regard to system changes.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:


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- a computer
- system software currently used in industry
- technical manuals and tools.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT305 Identify and use current industry specific technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify, research and apply industry specific technologies to ensure that the quality of the entire business process is maintained at the highest level possible.

It applies to individuals who work under minimal supervision and support information technology activities in the workplace across a wide range of information and communications technology (ICT) areas, including technical support, network administration, web technologies, software applications and digital media technologies.

Check the Implementation Guide Companion Volume for details about licensing, legislative or certification requirements.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use industry specific technologies | 1.1 Identify technologies specific to an industry sector<br>1.2 Acquire and use the industry specific technologies<br>1.3 Identify, classify and use industry specific technologies where appropriate for the benefit of the organisation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Use industry specific technology to assist in solving organisational problems | 2.1 Conduct testing of industry specific technology<br>2.2 Use features and functions of industry specific technology within an organisational context<br>2.3 Demonstrate depth of knowledge of the enabling technologies to an accepted industry standard<br>2.4 Access and use sources of information relating to the industry specific technology |
| 3. Evaluate industry specific technology performance | 3.1 Evaluate industry specific technology for performance, usability and benefit to the organisation<br>3.2 Determine environmental considerations involved with using the technology<br>3.3 Seek feedback from users, where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.1-1.3, 2.3, 2.4 | • Investigates, evaluates and applies information from a range of complex and technical texts to expand own knowledge and identify industry specific technologies that will benefit the organisation |
| Reading | 1.1, 1.3, 2.1, 2.4, 3.2, 3.3 | • Identifies and interprets technical online and hard copy documentation containing complex terminology and diagrams to identify industry specific technologies that will benefit the organisation, and to determine environmental considerations |
| Oral Communication | 1.1-1.3, 2.4, 3.1-3.3 | • Elicits information and feedback by using effective listening and questioning techniques to identify and evaluate industry specific technologies<br>• Uses clear, easy-to-understand language, translating industry specific terminology into plain English when talking to users and when necessary |
| Navigate the world of work | 3.2 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context |


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| | | |
|---|---|---|
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1 | • Recognises some general design and operating principles of digital tools<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Initiates standard procedures when responding to familiar problems within immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT305 Identify and use current industry specific technologies | ICAICT305A Identify and use current industry specific technologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT305 Identify and use current industry specific technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify new and emerging industry specific technologies
- use features and functions of identified industry specific technologies to an industry standard level
- evaluate the performance and usability of the technology.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss current technology trends and directions in information and communications technology (ICT) and specifically the major industry technology standards used in the specified ICT area
- describe vendor product directions relating to the specified ICT area
- describe the general features, capabilities and application of current industry hardware and software products
- outline information gathering techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a site where industry specific technologies may be used
- industry specific technologies currently used in industry


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- documents detailing work health and safety (WHS) standards, environmental guidelines and organisational requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT306 Migrate to new technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research, acquire, evaluate and apply new technology to improve the organisation’s performance.

This unit applies to individuals who have achieved a degree of autonomy as information and communications technology (ICT) users and support staff engaged in ongoing review and research to identify and apply new technology or techniques to improve aspects of the organisation's activities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use new technology | 1.1 Review organisation’s goals and activities<br>1.2 Research new operational technologies that will advance the organisation’s goals and activities<br>1.3 Prepare evaluation checklist<br>1.4 Evaluate and select the most appropriate technologies<br>1.5 Acquire selected technology |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.6 Identify and use new or upgraded equipment where appropriate for the benefit of the organisation |
| 2. Use technology to assist in solving organisational problems | 2.1 Conduct testing of new or upgraded equipment<br>2.2 Use features and functions of new or upgraded equipment and software within the organisation<br>2.3 Access and use sources of information relating to new or upgraded equipment |
| 3. Evaluate new or upgraded technology performance | 3.1 Evaluate new or upgraded equipment for performance and usability against work health and safety (WHS) standards and evaluation criteria<br>3.2 Determine environmental considerations for new or upgraded equipment<br>3.3 Seek feedback from users, where appropriate<br>3.4 Document new technology in a method consistent with organisational guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.1, 1.3, 1.4, 2.3 | • Investigates, evaluates and applies information from a range of complex and technical texts to expand own knowledge and identify new technologies that will benefit the organisation |
| Reading | 1.2, 1.4, 2.3, 3.1-3.3 | • Identifies and interprets technical online and hard copy documentation containing complex terminology and diagrams to identify new technologies that will benefit the organisation, and to determine organisational, WHS and environmental considerations |
| Writing | 1.3, 3.3, 3.4 | • Uses appropriate language and document structure to clarify evaluation criteria and enhance objectivity when developing checklists<br>• Uses correct grammar, sentence structure and, as much as possible, plain English in all documentation |


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| | | |
|---|---|---|
| | | developed<br>• Uses appropriate questioning strategies, avoiding loaded or leading questions, when developing feedback gathering documentation |
| Oral Communication | 1.1, 1.2, 1.4, 2.3, 3.3 | • Elicits information and feedback by using effective listening and questioning techniques, and language appropriate to the audience and subject matter to identify and evaluate new technologies<br>• Uses clear, easy-to-understand language, translating technical terminology into plain English when talking to users |
| Navigate the world of work | 3.1 | • Appreciates the implications of legal and regulatory responsibilities related to own work and is beginning to recognise some general legal principles across work contexts |
| Get the work done | 1.3, 1.4-1.6, 2.1, 2.2, 3.2 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for efficiency<br>• Understands the purposes, specific functions and key features of common digital systems and tools<br>• Tests and operates common digital tools and systems to effectively complete routine tasks<br>• Takes responsibility for the outcomes of routine decisions related directly to own role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT306 Migrate to new technology | ICAICT306A Migrate to new technology | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT306 Migrate to new technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify new and emerging technology in information and communications technology (ICT)
- test and evaluate new equipment for the benefit of the organisation
- use features and functions of new technologies, including software and equipment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss current technology trends and directions in ICT including:
  - hardware
  - new developments
  - new protocols
  - services
  - software
- describe the general features and capabilities of current industry hardware and software products
- outline information gathering techniques
- outline vendor product directions relating to specified technology.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a site where new technology may be used
- new equipment and software currently used in industry
- documents detailing work health and safely (WHS) standards, environmental guidelines and organisational requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT307 Customise packaged software applications for clients

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse, design, implement and review the customisation of packaged software applications, using simple programming constructs.

It applies to individuals who have achieved a degree of autonomy as information and communications technology (ICT) users and support personnel for software application activities in the workplace.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse customisation requirements | 1.1 Determine and document client requirements in a requirement specifications file in line with organisational requirements and security requirements<br>1.2 Confirm that projected specifications meet client requirements<br>1.3 Determine level of documentation necessary to meet client requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Develop customisation | 2.1 Design software applications, taking into account system limitations and client needs<br>2.2 Customise software applications using simple programming constructs, conforming to organisational requirements<br>2.3 Obtain feedback from the client following client testing of the customised software applications<br>2.4 Make further changes to software applications to meet client requirements<br>2.5 Document the changes |
| 3. Provide support for customised application | 3.1 Produce documentation for client<br>3.2 Produce help desk documentation for ongoing support<br>3.3 Obtain clients' evaluation and feedback to ensure that their requirements have been met |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.2, 3.3 | • Identifies and interprets a variety of hard copy and online technical information to identify organisational requirements and clarify client requirements |
| Writing | 1.1, 1.3, 2.1, 2.2, 2.4, 2.5, 3.1, 3.2 | • Uses correct spelling and grammar, plain English and specific terminology to produce documents to organisational guidelines as required by the job role<br>• Uses the appropriate programming syntax and conventions to perform job role |
| Oral Communication | 1.1-1.3, 2.3, 3.3 | • Elicits and evaluates information using effective listening and questioning techniques<br>• Uses simple and relevant language to confirm understanding of requirements, liaise with the client and obtain feedback |
| Get the work | 1.1, 1.3, 2.1-2.4 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and |


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| | | |
|---|---|---|
| done | | combining elements for efficiency<br>• Understands the purposes, specific functions and key features of common digital systems and tools<br>• Tests and operates common digital tools and systems to effectively complete routine tasks<br>• Takes responsibility for the outcomes of routine decisions related directly to own role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT307 Customise packaged software applications for clients | ICAICT307A Customise packaged software applications for clients | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT307 Customise packaged software applications for clients

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- interpret and document client requirements to customise software applications
- design software applications
- analyse, implement and review customised software applications
- produce documentation for the client
- obtain feedback from client to ensure requirements have been met.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the general features and capabilities of current industry accepted hardware and software products
- discuss functions and features of software applications suitable for client
- discuss functions and features of the operating system (OS)
- identify information and communications technology (ICT) structure and system infrastructure
- describe organisational policy and procedures relating to customising software
- identify organisational security procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:


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- a site where software applications may be customised
- use of customisable software applications currently used in industry
- client requirements documentation
- organisational requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT308 Use advanced features of computer applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use computer applications employing advanced features. It involves manipulating data and accessing support resources to solve routine problems.

It applies to individuals who have achieved a degree of autonomy as advanced information and communications technology (ICT) users, and support information technology activities in software applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manipulate data | 1.1 Employ advanced features of applications in the preparation and presentation of data<br>1.2 Transfer data between applications, linking and embedding related data files as required<br>1.3 Create and employ objects, macros and templates for routine activities |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Use shortcuts and features to increase personal productivity |
| 2. Access and use support resources | 2.1 Solve routine problems using support resources<br>2.2 Use online help to overcome difficulties with applications<br>2.3 Solve problems with manuals and training booklets<br>2.4 Access and apply technical support for system problems, using troubleshooting results and alert messages |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1-2.4 | • Identifies and interprets a variety of hard copy, online and software generated technical information containing software specific language, syntax and code to apply features and functions of applications to their fullest extent and to solve problems |
| Oral Communication | 2.1, 2.4 | • Discusses and resolves problems using technical terms and language, and effective listening and questioning techniques |
| Get the work done | 1.1-1.4, 2.1-2.4 | • Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT308 Use advanced features of computer applications | ICAICT308A Use advanced features of computer applications | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT308 Use advanced features of computer applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use at least three computer applications employing advanced features and import and export capacities for efficiency and productivity purposes
- solve routine problems using support resources.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the basic features and functions of relevant operating systems software and system tools
- outline relevant vendor product directions in computer applications
- identify commonly available vendor applications and their features.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a site where advanced features of computer applications may be used
- computer applications currently used in industry
- documents or information containing data suitable to demonstrate advanced features of computer applications
- support resources, including online, manuals and training booklets.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT401 Determine and confirm client business requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to determine client business system requirements and verify the accuracy of the information gathered.

It applies to information and communications technology (ICT) personnel who are required to analyse client expectations and needs, and recommend business system changes.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine context of business need or problem | 1.1 Establish the business problem to be investigated, including determining system boundaries, scope and the development methodology to be used<br>1.2 Choose information gathering method and develop questions appropriate to business problem<br>1.3 Develop objectives and identify expected outcomes to be achieved<br>1.4 Document the business problem |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Submit documentation to appropriate person for substantiation |
| 2. Gather information | 2.1 Use chosen information gathering method to identify clients of the system and problems they encounter<br>2.2 Record client responses<br>2.3 Analyse gathered information to identify new system requirements and establish problem specifications<br>2.4 Document system requirements and problems<br>2.5 Analyse physical requirements and identify changes required to implement new systems |
| 3. Confirm system specifications | 3.1 Check documentation to ensure it meets client business needs<br>3.2 Submit documentation to the client for verification of accuracy and approval<br>3.3 Make changes to the documentation as necessary and indicated by the client<br>3.4 Submit documentation to client for final approval or sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.3, 2.5, 3.1 | • Identifies, analyses and evaluates information from a variety of sources containing complex systems related terminology to determine system performance requirements and establish solutions |
| Writing | 1.2-1.4, 2.2, 2.4, 3.3 | • Uses the correct spelling and grammar, plain English and, when necessary, systems related text and terminology to develop information gathering tools and document recommendations |
| Oral Communication | 1.1, 2.1, 2.5, 3.2, 3.4 | • Uses plain English, effective listening and questioning techniques and, where necessary, systems related terminology to elicit information |


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| | | |
|---|---|---|
| | | • Uses plain English and relevant terminology to liaise with clients, present information and obtain feedback |
| Get the work done | 1.1-1.3, 2.1, 2.3, 2.5 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements so work is undertaken methodically<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts<br>• Understands the purposes, specific functions and key features of common digital systems and tools to provide current advice on systems and data gathering products |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT401 Determine and confirm client business requirements | ICAICT401A Determine and confirm client business requirements | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT401 Determine and confirm client business requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use investigative techniques to obtain information and document the business system problem
- produce a clear statement of business expectations and needs, including critical business requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe a variety of data gathering techniques
- describe areas related to the client business in detail
- interpret functional organisational charts
- outline physical requirements of the client's business, taking into account current system functionality, geography, environment, client user and cost constraints
- describe products related to data capture
- discuss the role of stakeholders and the degree of stakeholder involvement.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- current business needs
- a client expectations brief


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- business objectives
- systems, data gathering and appropriate software products.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT402 Determine project specifications and secure client agreement

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop agreed acceptance criteria for information and communications technology (ICT) projects.

It applies to individuals who are competent in a wide range of general ICT technologies and support small to medium enterprises (SMEs) that require broader rather than more specialised ICT support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine milestones and quality attributes with client | 1.1 Interview client to determine project deliverables and acceptance criteria<br>1.2 Document project milestones and associated deliverables in measurable terms, taking into account constraints<br>1.3 Determine and document criteria to evaluate each deliverable |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Negotiate and document quality standards with client<br>1.5 Confirm project direction with appropriate person |
| 2. Formulate metrics and milestones | 2.1 Define the units of measurement (metrics) that will be used in the project, including consideration of project milestones, timeframe and costs<br>2.2 Schedule the measurement of project milestones and associated deliverables<br>2.3 Document the process for analysing variances and their impact on the project<br>2.4 Schedule quality reviews into project plan |
| 3. Obtain client agreement to acceptance criteria | 3.1 Obtain client agreement for project delivery dates<br>3.2 Communicate acceptance criteria clearly and coherently to the client<br>3.3 Obtain client agreement to acceptance criteria and anticipated timeframes for the project |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 1.2-1.4, 2.2-2.4 | • Uses plain English; appropriate grammatical structures and specialised terminology; diagrams and flow charts; logical document structures and formatting relevant to the job role and organisation to record project deliverables and benchmarks<br>• Enters text, data and financial information into project planning tools to produce output for the project plan that is appropriate to the audience |
| Oral Communication | 1.1, 1.4, 1.5, 3.1-3.3 | • Uses open questioning and effective listening techniques to elicit information, clarify requirements and conduct effective negotiations<br>• Uses appropriate vocabulary, grammatical structure, voice tone, body language and reflective responses to negotiate deliverables, present project plan and gain consensus |


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| | | |
|---|---|---|
| Numeracy | 1.1-1.4, 2.1-2.3 | • Applies mathematical calculations and financial functions relating to timelines and project budgets |
| Interact with Others | 1.1, 1.4, 1.5, 3.1-3.3 | • Identifies and takes steps to follow accepted communication practices and protocols<br>• Uses a limited range of accepted practices for communicating in a work environment |
| Get the work done | 1.1-1.3, 1.5, 2.1, 2.2, 2.4 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant information, including strategic initiatives and resources<br>• Considers purpose, needs and limitations when selecting digital devices and applications for different tasks<br>• Uses digital technology for basic reading, recording and searching information, and for communications following routine procedures and security requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT402 Determine project specifications and secure client agreement | ICAICT402A Determine project specifications and secure client agreement | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT402 Determine project specifications and secure client agreement

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop acceptance criteria for a project
- document acceptance criteria according to organisational standards
- present the document to stakeholders and obtain approval.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business area
- outline project planning methodologies and tools
- identify and apply quality processes
- interpret system development plans
- identify technical tools and their use relating to task list when formulating metrics and milestones
- explain the theory and purpose of metrics.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- client requirements
- technical specifications


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- organisational and process goals
- critical business requirements
- predefined high-level acceptance criteria
- project deliverables
- future organisational business processes test plan
- project budget timeframe.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT403 Apply software development methodologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply traditional and non-traditional systems development methodologies.

It applies to individuals in a senior development role who exercise discretion and judgement to create solutions using appropriate technical knowledge and analysis skills.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine and select appropriate methodology for a given activity | 1.1 Determine and define subject activity<br>1.2 Define criteria for selection of development methodology<br>1.3 Review and evaluate a range of traditional and non-traditional system development methodologies<br>1.4 Select appropriate system development methodology to suit the activity |
| 2. Apply the selected | 2.1 Create an initial project plan to guide developmental |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| development methodology | processes<br>2.2 Identify appropriate task types according to development methodology<br>2.3 Clearly describe and articulate task types<br>2.4 Define appropriate control structures that need to be created during task type execution<br>2.5 Associate each task type with a set of input and output parameters |
| 3. Adjust project to suit appropriate methodology | 3.1 Identify resources to support methodology selection<br>3.2 Apply appropriate methodology to solve tasks<br>3.3 Monitor project flow and record effectiveness against project plan<br>3.4 Review and document opportunities for improvement, lessons learned and recommendations for future projects<br>3.5 Submit results to appropriate person for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 3.1, 3.4 | • Identifies, analyses and evaluates a range of textual information containing complex systems development specific terminology, syntax and diagrams, and applies the information to the task |
| Writing | 2.1, 2.3, 3.3, 3.4 | • Uses the correct spelling and grammar, and technical terminology to develop project plans, document recommendations, processes and reports in a format suitable to the audience |
| Oral Communication | 1.1, 1.3, 2.3, 3.1-3.4 | • Elicits and evaluates information using project related terminology and effective listening and questioning techniques<br>• Uses plain English and, where necessary, project related terminology to liaise with clients, present information and obtain feedback<br>• Uses specific and complex systems development |


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| | | |
|---|---|---|
| | | terminology to liaise with co-workers |
| Get the work done | 1.1-1.4, 2.2, 2.4, 2.5, 3.1-3.4 | • Uses familiar digital systems and tools to access, organise, analyse and display information relevant to the role<br>• Applies formal processes when planning more complex tasks, producing plans with logically sequenced steps, reflecting an awareness of time and resource constraints and the needs of others<br>• Reflects on the appropriateness and effectiveness of project methodologies and identifies some key principles that may be relevant in future situations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT403 Apply software development methodologies | ICAICT403A Apply software development methodologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT403 Apply software development methodologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a project plan
- apply a methodology to a project
- produce documentation as required by the chosen methodology.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe client business domain and organisational requirements
- explain current project requirements
- explain role of stakeholders and the degree of stakeholder involvement in the development process
- describe at least two current system development methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- design specifications and current methodologies
- organisational standards for documentation and version control
- detailed user requirements document, including model and scope.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT404 Use online learning tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use the internet as a resource to acquire knowledge and skills to meet client requirements.

It applies to individuals who use the internet to maintain currency of workplace skills.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify learning requirements | 1.1 Identify learning requirements and skill gaps<br>1.2 Seek advice from relevant personnel on learning requirements and skill gaps<br>1.3 Identify opportunities for undertaking learning development activities<br>1.4 Develop learning plan |
| 2. Research learning tools available online | 2.1 Identify existing online learning tools<br>2.2 Research and evaluate other relevant online learning tools |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Undertake learning | 3.1 Implement learning plan<br>3.2 Identify opportunities in the workplace to apply new learning<br>3.3 Follow coaching or mentoring advice in work activities |
| 4. Monitor learning effectiveness | 4.1 Determine suitable assessment mode<br>4.2 Review outcomes of assessment<br>4.3 Undertake peer assessment<br>4.4 Assess feedback from peer assessment, individuals and colleagues<br>4.5 Identify further learning requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.1, 1.2, 1.4, 3.1, 3.3, 4.3 | • Identifies future skills and knowledge needs by seeking the opinions of others<br>• Investigates and evaluates information from a range of sources to select learning development activities to meet skills gaps and future learning needs<br>• Uses a range of learning mediums, including coaching, mentoring, online and peer-to-peer to manage the learning process, and ensures learning is reinforced by application |
| Reading | 1.1, 1.3, 2.1, 2.2, 3.2, 4.1, 4.2, 4.4, 4.5 | • Identifies, analyses and compares information gathered from a large range of both online and hard copy texts to determine current and future learning needs, and to develop and execute a learning plan |
| Writing | 1.4, 2.2, 3.1, 4.3 | • Uses appropriate and clear language, including clear referencing and web links, to document findings, develop a learning plan, undertake assessment and complete learning |
| Oral Communication | 1.2, 3.3, 4.3, 4.4 | • Elicits and evaluates information using effective listening and questioning techniques to identify skills gaps and future skills needs, and undertake |


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| | | |
|---|---|---|
| | | the learning, assessment and feedback process |
| Interact with Others | 1.2, 3.3, 4.3 4.4 | • Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers<br>• Cooperates with others and contributes to work practices where joint outcomes are expected and deadlines are to be met |
| Get the work done | 2.1, 3.1, 3.2, 4.1, 4.2 | • Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Takes responsibility for defining key aspects of own workload and managing own learning related activities<br>• Reflects on the appropriateness and effectiveness of assessment outcomes and identifies some key principles that may be relevant in future situations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT404 Use online learning tools | ICAICT404A Use online learning tools | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT404 Use online learning tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify current and future skills needs
- develop and implement learning plan and assessment
- use online learning tools to acquire knowledge and skills to meet client requirements
- maintain currency of skills within the workplace.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the current and future industry trends
- identify and describe relevant legislation and statutory requirements
- describe organisational training policies, plans and procedures
- identify and apply a range of online training tools
- explain the principles and techniques of measuring performance and self-assessment
- identify methods to recognise and prioritise required learning needs
- describe the systems and processes used to direct learning
- identify relevant competency standards and assessment relative to learning needs.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to the internet to use online learning tools.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT405 Develop detailed technical design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to assist in the development of a detailed technical design.

It applies to individuals performing systems design tasks who are required to review and update technical design documents.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assist in selecting technical design features | 1.1 Select and revise design model based on iteration and design changes<br>1.2 Incorporate outstanding design points according to acceptance criteria<br>1.3 Distribute reports identifying changes and implications to appropriate person for review |
| 2. Contribute to design review | 2.1 Compare design against requirements and fix as necessary |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Confirm design with appropriate person<br>2.3 Use feedback mechanisms to gather information on design changes from client<br>2.4 Incorporate design changes where required |
| 3. Contribute to development of program specifications | 3.1 Implement modules by incremental development techniques<br>3.2 Identify user authority for each module<br>3.3 Prepare detailed specifications of module implementation for each module that will not be incrementally built<br>3.4 Prepare documentation according to requirements of the project |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.3 | • Identifies, analyses and evaluates a range of online and hard copy text containing complex systems design terminology, syntax and diagrams, and applies the information to the task |
| Writing | 1.1, 1.2, 2.3, 2.4, 3.3, 3.4 | • Uses correct spelling and grammar, plain English, systems design related terminology and diagrams to obtain feedback, document recommendations and prepare final project specifications |
| Oral Communication | 1.1, 1.3, 2.2, 2.3 | • Elicits and evaluates information using project related terminology and effective listening and questioning techniques<br>• Uses plain English and, where necessary, project related terminology to liaise with clients, present information and obtain feedback |
| Interact with Others | 1.3, 2.2, 2.3 | • Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection and build rapport with clients and co workers |


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| | | |
|---|---|---|
| Get the work done | 1.1-1.3, 2.1, 2.4, 3.1-3.3 | • Uses familiar digital systems and tools to incorporate required changes to model<br>• Applies formal processes when developing strategic initiatives, and plans tasks with logically sequenced steps<br>• Initiates standard procedures when responding to familiar problems within immediate context<br>• Uses familiar digital technologies and systems to access information, search and enter data and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT405 Develop detailed technical design | ICAICT405A Develop detailed technical design | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT405 Develop detailed technical design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- define the client business domain and client's critical business functions and processes
- design and prepare a clear and best-fit technical design for a set project, incorporating:
  - changes to design model based on user requirements
  - detailed specification of modules
- produce updated documentation to reflect changes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain various life cycle options
- describe design fundamentals and refinement
- discuss design quality metrics.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- requirements model
- business requirements
- project deliverables
- acceptance criteria


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- current ICT blueprint.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT406 Build a graphical user interface

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, build and test a graphical user interface (GUI) to specification.

It applies to individuals employed as programmers in a variety of fields who provide information and communications technology (ICT) support in small to medium enterprises (SMEs).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine specification of GUI | 1.1 Review GUI requirements<br>1.2 Review organisational standards for GUI<br>1.3 Determine the back-end for interfacing with the GUI<br>1.4 Determine the functionality of the GUI, including back-end interface<br>1.5 Determine the application development language for writing the GUI |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.6 Determine type and level of documentation required |
| 2. Design GUI to specification | 2.1 Design the GUI incorporating the required functionality<br>2.2 Document design outcomes |
| 3. Build GUI to specification | 3.1 Build the GUI with the required functionality in the determined language, using the toolkit's classes or widgets, containers and other pertinent features |
| 4. Test and document GUI to meet specification | 4.1 Test GUI for overall functionality according to requirements<br>4.2 Iterate GUI design or build until test results meet requirements<br>4.3 Produce technical documentation for the GUI |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 1.6 | • Identifies and interprets a range of online and hard copy text containing complex ICT and programming specific terminology<br>• Interprets and comprehends a large range of syntax, diagrams, icons, symbols, text, numbers and letters necessary to develop a GUI |
| Writing | 2.1, 2.2, 3.1, 4.2, 4.3 | • Uses correct spelling and grammar, plain English and specific terminology to produce documents to organisational guidelines as required by the job role<br>• Uses the appropriate programming syntax and conventions to develop the GUI<br>• Uses plain English, clear labels and terminology appropriate for the user on the actual interface display |
| Oral Communication | 1.1-1.4, 1.6 | • Elicits and evaluates information using effective listening and questioning techniques<br>• Uses simple and relevant language to confirm understanding of requirements |


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| | | |
|---|---|---|
| Navigate the world of work | 1.2 | • Recognises and follows explicit protocols and meets expectations associated with own role |
| Get the work done | 1.1, 1.3-1.6, 2.1, 3.1 | • Develops plans to manage relatively complex tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, and implements contingency plans<br>• Takes responsibility for the outcomes of routine decisions related directly to own role<br>• Considers purpose, needs and limitations when selecting devices and applications for different tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT406 Build a graphical user interface | ICAICT406A Build a graphical user interface | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT406 Build a graphical user interface

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- build a graphical user interface (GUI) to requirements
- demonstrate a GUI in concept and compiled form, using appropriate development tools to assist GUI construction
- develop appropriate documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain and apply object oriented programming concepts
- identify the system properties
- describe the features of application programming interface (API)
- identify the issues relating to copyright and intellectual property
- discuss code of practice relevant to the computer industry
- discuss the Commonwealth and State privacy and information access legislation applicable to the job role.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- GUI requirements
- organisational standards


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- a development environment.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT407 Maintain website information standards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to publish new content and establish and maintain the accuracy and usability of current content on client websites. It applies to individuals working in the web area who provide support in small to medium enterprises (SMEs).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare and publish organisational content and information required by industry for website | 1.1 Validate organisational information and seek approval prior to uploading to a website<br>1.2 Ensure specific details of the organisation are made available on the website<br>1.3 Ensure privacy, security and liability statements are correctly displayed on the website and conform to legislative requirements and web development standards<br>1.4 Develop and make available organisational information |
| 2. Provide navigation links and payment | 2.1 Ensure website users have navigation links to access appropriate information, regardless of where they are located |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| information | within the website<br>2.2 List various payment options on the website |
| 3. Ensure disclosure of policies and services | 3.1 Present a clear website statement outlining charges<br>3.2 Present warranty information on appropriate screen, prior to finalising orders<br>3.3 Provide after-sales support and services information, and direct the website user to its location<br>3.4 Ensure website contains policies regarding cancellations, returns and refunds, and associated conditions |
| 4. Communicate product or service conditions and notifications | 4.1 Ensure appropriate screens display limitations and legislative restrictions on who or where goods and services will be sold or shipped to<br>4.2 Ensure the website provides facilities to confirm orders and cancellations as quickly as possible<br>4.3 Ensure website provides facilities to communicate to client with minimum delay, details of orders, hold-ups or errors with ordered or cancelled goods or services, information about changed costs or adjustments, and expected date of arrival |
| 5. Ensure customer service support | 5.1 Explain service standards and make them available to all potential and current website users<br>5.2 Ensure website users have a method for providing feedback on aspects of information held on the website<br>5.3 Ensure acknowledgements of complaints are transmitted to website users lodging complaints, with a description of what will take place within the organisation to address issues raised |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1 | • Reviews a range of documentation of varying quality to identify information relating to the organisation, organisational responsibilities and legislative requirements |


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| | | |
|---|---|---|
| Writing | 1.2- 1.4, 2.2, 3.1–3.4, 4.1–4.3, 5.1–5.3 | • Uses correct spelling and grammar, plain English, a consistent writing style and industry specific terminology to produce web content to organisational guidelines and to web development standards<br>• Uses the appropriate syntax and conventions to upload content onto the web and modify existing web content |
| Oral Communication | 1.1, 1.4 | • Uses simple and relevant language and effective listening and questioning techniques to develop and validate organisational information |
| Navigate the world of work | 1.3 | • Takes personal responsibility for adherence to legal/regulatory responsibilities relevant to own work context |
| Get the work done | 1.2-1.4, 2.1, 3.1-3.4, 4.1-4.3, 5.1-5.3 | • Uses familiar digital systems and tools to access websites, publish on a website and write hypertext markup language (HTML) code<br>• Applies methodical processes to collect and evaluate organisational information for web publication |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT407 Maintain website information standards | ICAICT407A Maintain website information standards | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT407 Maintain website information standards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- apply current programming practices in the preparation and publishing of the organisation web site
- comply with organisation, legislative and industry requirements
- develop policies applicable to cancellations, returns and refunds
- display a site accessible to a variety of customers via electronic communication
- develop and modify information to meet the requirements for an effective and efficient e-commerce interaction.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline consumer protection legislation
- identify content features, including clarity and readability
- discuss document design, web design and usability
- interpret electronic commerce modelling language
- discuss information architecture principles
- discuss instructional design principles
- identify obligations of merchants and service providers
- identify organisational requirements
- outline privacy legislation.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a range of organisational policies, procedures and guidelines
- customer service manuals and general data
- appropriate organisational structures
- information standards for legislative and organisational requirements
- software and web development tools.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT408 Create technical documentation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create technical documentation that is clear to the target audience and easy to navigate.

It applies to individuals working as technical writers, designers, developers and support staff who are required to produce technical support documents of their work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify and analyse documentation requirements and client needs | 1.1 Consult with client to identify documentation requirements<br>1.2 Interpret and evaluate documentation requirements and confirm details with client<br>1.3 Investigate industry and documentation standards for requirements<br>1.4 Define and document the scope of work to be produced<br>1.5 Consult with client to validate and confirm the scope of work |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design documentation | 2.1 Identify information requirements with reference to layout and document structure<br>2.2 Create document templates and style guides consistent with information requirements<br>2.3 Conduct a review of the system in order to understand its functionality<br>2.4 Extract content that meets information requirements according to copyright restrictions<br>2.5 Develop the structure of the technical documentation, giving focus to the flow of information, style, tone and content format<br>2.6 Validate the technical documentation structure with the client |
| 3. Develop documentation | 3.1 Write technical documentation based on the template and scope of work using the information gathered<br>3.2 Translate technical terminology into plain English where appropriate<br>3.3 Apply content format and style according to documentation standards and templates |
| 4. Evaluate and edit documentation | 4.1 Submit technical documentation to appropriate person for review<br>4.2 Gather and analyse feedback<br>4.3 Incorporate alterations into the technical documentation<br>4.4 Edit the technical documentation for technical and grammatical accuracy |
| 5. Prepare documentation for publication | 5.1 Check that the completed technical documentation meets client requirements and scope of work<br>5.2 Submit the technical documentation to appropriate person for approval<br>5.3 Prepare the technical documentation for publication and distribution using appropriate channels |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 2.3, 2.4, 4.2, 4.4, 5.1 | • Identifies and evaluates organisational documentation and standards, and a range of online and hard copy text containing technical project related terminology and diagrams, then applies the information to the development of appropriate technical documentation<br>• Interprets and comprehends a large range of diagrams, icons, and computer generated text |
| Writing | 1.4, 2.2, 2.5, 3.1-3.3, 4.3, 4.4, 5.3 | • Uses correct spelling and grammar, plain English and specific terminology relevant to the project<br>• Uses organisational naming conventions, terminology, style and format to develop technical documents to organisational standards |
| Oral communication | 1.1, 1.3-1.5, 2.1, 2.3, 2.6, 4.1, 4.2 | • Elicits and evaluates information using effective listening and questioning techniques<br>• Uses simple and relevant language to confirm understanding of requirements, present information and obtain feedback |
| Interact with others | 5.2 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Navigate the world of work | 1.3, 2.4 | • Appreciates the implications of legal and regulatory responsibilities related to own work and is beginning to recognise some general legal principles applicable across work contexts |
| Get the work done | 1.4, 2.1, 2.2, 2.5, 3.3, 4.2 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Uses familiar digital systems and tools to access, organise, analyse and display information relevant to role<br>• Automatically implements standard procedures for routine decisions |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT408 Create technical documentation | ICAICT408A Create technical documentation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT408 Create technical documentation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish customer needs
- design and develop technical documentation, such as system, procedures, training material and user guides, incorporating appropriate standards
- update document with client feedback
- prepare documentation for publication.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe content features, such as clarity and readability
- outline the principles of document design, web design and usability
- explain the functions and features of templates and style guides
- explain instructional design principles
- list organisational policies, procedures and standards that cover document design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- technical specifications
- documentation standards


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- organisational resources and documentation
- information about system, platform, network or application being documented
- relevant standards
- appropriate word processing software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT409 Develop macros and templates for clients using standard products

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop macros and templates for clients using industry recognised software applications.

It applies to individuals working in an office environment who achieve a degree of self-sufficiency as an advanced information and communications technology (ICT) user, and who support software applications activities in the workplace.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine macro or template requirement | 1.1 Determine client requirements in line with organisational guidelines<br>1.2 Develop macro or template specification<br>1.3 Confirm that macro or template specification meets client's needs and operational guidelines<br>1.4 Determine documentation requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Develop macro or template for client | 2.1 Develop macro or template to specification using industry recognised software applications<br>2.2 Demonstrate macro or template to client and obtain feedback<br>2.3 Amend macro or template as required by client<br>2.4 Update macro or template specification |
| 3. Provide client support for macro or template | 3.1 Document support and instruction requirements<br>3.2 Provide documentation to client help desk for future support |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4 | • Reviews a range of written and online texts to identify relevant organisational guidelines and requirements relating to the job role |
| Writing | 1.2, 1.3, 2.1, 2.3, 2.4, 3.1 | • Uses the appropriate macro syntax and conventions to develop macros<br>• Uses correct spelling and grammar; and organisational guidelines for terminology, address format, logos and document structure to develop templates<br>• Uses correct spelling and grammar, plain English and, when necessary, technical terminology to comply with documentation requirements and develop support documentation |
| Oral Communication | 1.1, 1.3, 1.4, 2.2, 3.2 | • Uses simple and relevant language and effective listening and questioning techniques to determine client needs and obtain feedback<br>• Uses technical language suitable to the job role when liaising with help desk personnel |
| Interact with others | 3.2 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 1.3 | • Recognises and follows explicit and implicit protocols, and meets expectations associated with own role |
| Get the work done | 1.1, 1.2, 2.1- 2.4 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Recognises and takes responsibility for addressing predictable problems in familiar work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT409 Develop macros and templates for clients using standard products | ICAICT409A Develop macros and templates for clients using standard products | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT409 Develop macros and templates for clients using standard products

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine client needs and specifications for macros and templates
- develop a variety of macros and templates using at least two industry recognised application packages
- provide support to the client for utilising the macros and templates.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline features and functions of particular categories of commercial computing packages, in particular procedures for:
  - creating macros and using default templates supplied by the software application package
  - creating new macros and templates
- identify functions and features of the operating system
- identify features and functions of software and hardware supported by the organisation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- documents detailing organisational policies
- a personal computer where software installation may be performed
- internet connection
- networked computers
- server and workstation hardware and software


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- style guides and design brief
- technical documentation and installation manuals
- use of software currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT410 Conduct post-implementation ICT system reviews

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan and execute an information and communications technology (ICT) system review following implementation at a point where the system has been operational for some time.

It applies to individuals working in a range of ICT development roles in small to medium enterprises (SMEs) and who are required to review the success of a project with a view to contributing to best practice for future projects.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Schedule review | 1.1 Review organisational guidelines and criteria procedures to identify system implementation results<br>1.2 Convert the review process into specific criteria<br>1.3 Contact the appropriate person to schedule timing and venue of review<br>1.4 Prepare work schedule for the review, based on organisational guidelines, identifying action, items and staff |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | involved<br>1.5 Contact appropriate vendor and other organisations regarding support or service commitments |
| 2. Carry out review | 2.1 Explain the purpose of the review to stakeholders<br>2.2 Use techniques to obtain data on the areas under review |
| 3. Document and publish results | 3.1 Document and record information relating to the system review<br>3.2 Distribute review results and related documentation to stakeholders<br>3.3 Gather feedback from stakeholders about the review document<br>3.4 Schedule additional meetings and discuss the review findings with stakeholders<br>3.5 Finalise recommendations and action items from the review and distribute to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.3 | • Identifies and analyses system specific data, output and feedback containing technical terminology to identify system implementation results |
| Writing | 1.2, 1.4, 2.2, 3.1, 3.5 | • Uses plain English and appropriate questioning strategies, avoiding loaded or leading questions, when developing information gathering documentation<br>• Employs vocabulary, grammatical structures, appropriate terminology, formatting and structure relevant to the specific task and organisation to develop review criteria, create a schedule and produce reports |
| Oral Communication | 1.1, 1.3-1.5, 2.1, 2.2, 3.3-3.5 | • Uses plain English to articulate review and scheduling requirements, and applies effective listening and questioning techniques to elicit data |


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| | | |
|---|---|---|
| | | and feedback<br>• Participates in a verbal exchange of ideas/solutions and uses detailed and clear language to clarify and present information according to requirements and audience |
| Interact with others | 3.2, 3.5 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Navigate the world of work | 1.1, 1.4 | • Complies with explicit organisational policies and procedures |
| Get the work done | 1.1, 1.4, 2.2, 3.3-3.5 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Initiates standard diagnostic procedures when responding to familiar and unfamiliar problems within immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT410 Conduct post-implementation ICT system reviews | ICAICT410A Conduct post-implementation IT system reviews | Updated to meet Standards for Training Packages.<br><br>Minor edit to title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT410 Conduct post-implementation ICT system reviews

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan a review of a system after the implementation has been completed and has been operational for some time
- carry out the review
- document the results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify client business domain
- identify current industry accepted hardware and software products
- discuss implementation process and issues
- compare review techniques
- identify specific project concerned
- discuss role of stakeholders and the degree of stakeholder involvement in a review.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a personal computer (PC) where software installation may be performed
- use of software currently used in industry


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- documents detailing organisational style guide or policies
- server and workstation hardware and software
- an internet connection
- an operational system and specifications.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT411 Select and employ software and hardware testing tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to select and use software and hardware diagnostic and testing tools.

It applies to individuals in a wide range of information and communications technology (ICT) areas who are required to test software and hardware.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish process operational requirements | 1.1 Identify process requirements, ensuring they are accurate, complete, prioritised, have functionality, and reference appropriate method or media types<br>1.2 Identify conflicting or overlapping requirements<br>1.3 Document and validate functional requirements of the client<br>1.4 Identify and validate available resources and budget |
| 2. Select hardware and | 2.1 Identify and evaluate relevant hardware and software tools |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| software for processing function | with reference to functional requirements<br>2.2 Identify and analyse relevant products and equipment interdependencies with reference to functional requirements and system architecture<br>2.3 Identify and document appropriate tools, including their limitations for the required use and industry standards<br>2.4 Select and acquire tools according to purchasing policies |
| 3. Configure and test hardware and software | 3.1 Install and configure appropriate hardware and software tools according to vendor guidelines with reference to system architecture and client functionality requirements<br>3.2 Configure system architecture for optimal usage<br>3.3 Prepare, schedule and execute tests and record outcomes<br>3.4 Track errors, and interpret and correct them<br>3.5 Make changes to the tested hardware or software based on test results<br>3.6 Document the hardware and software configuration according to requirements |
| 4. Use and validate software and hardware | 4.1 Provide appropriate training of client with reference to guides, instructions and vendor materials<br>4.2 Use hardware and software according to vendor guidelines<br>4.3 Validate hardware and software performance with reference to client functional requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.1, 2.4, 3.1, 3.3-3.5, 4.2 | • Identifies and comprehends a large range of complex textual and diagrammatic information with systems related terminology to determine organisational requirements and standards, and select appropriate tools and processes |
| Writing | 1.3, 2.3, 2.4, | • Uses correct spelling and grammar together with relevant systems related terminology to document |


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| | | |
|---|---|---|
| | 3.1-3.3, 3.6 | progress and results, and develop user documentation<br>• Converts jargon, terminology and acronyms into plain English<br>• Uses specific scripting and syntax to install, configure and program the system to user requirements |
| Oral communication | 1.1, 1.2, 1.4, 2.1, 2.2, 3.3, 4.1 | • Uses effective listening and questioning techniques and systems related terminology to elicit information about the systems and make the correct tool selection<br>• Uses plain English and interprets technical terminology when liaising with clients and providing training |
| Numeracy | 1.4, 2.4 | • Performs mathematical calculations to interpret complex financial information |
| Interact with others | 4.1 | • Shares information and resources, provides training voluntarily and feedback to client when required |
| Navigate the world of work | 2.3 | • Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Get the work done | 1.1, 1.2, 1.4, 2.1-2.4, 3.1-3.4, 3.5, 4.2, 4.3 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Initiates standard diagnostic procedures when responding to familiar and unfamiliar problems within immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT411 Select and employ software and hardware testing tools | ICAICT411A Select and employ software and hardware testing tools | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT411 Select and employ software and hardware testing tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate hardware and software that meet functional requirements
- select and use the correct automating tools
- develop an automating process to produce an outcome that is measurable and meets specified requirements
- install, configure and document hardware and software according to vendor guidelines
- validate hardware and software performance against client usage requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and apply batch scripting of nominated automating software routines
- discuss relevant aspects of the client business domain
- identify and apply vendor product directions
- describe current industry accepted hardware and software products, and their features and capabilities
- explain the functions and features of:
  - development tools, including animation development tools
  - development package automating options
  - third-party tools for automating a range of software applications
  - media management tools
- identify interaction between relevant hardware and software products.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a site where automated processing may be carried out
- hardware and software currently used in industry
- a range of automating vendor products currently used in industry
- client requirements documentation
- organisational requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT412 Coordinate and maintain ICT work teams

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish and manage work teams and their performance in an information and communications technology (ICT) environment.

It applies to individuals who are competent in a wide range of general information and communications technologies (ICT) and work in a management capacity within a small to medium enterprise (SME).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish team | 1.1 Select and identify suitable team members for a particular project or problem<br>1.2 Secure agreement from appropriate persons for release of team members<br>1.3 Identify the type of work team<br>1.4 Determine time allocation for team members to suit team operations or nature of the project or problem |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Define team and individual responsibilities<br>1.6 Define how team performance will be measured |
| 2. Coordinate team | 2.1 Clarify and plan tasks in consultation with the team<br>2.2 Allocate tasks appropriately<br>2.3 Determine and apply motivational factors<br>2.4 Represent the team at meetings<br>2.5 Work with team members to manage interpersonal conflict |
| 3. Conduct team activities and review team performance | 3.1 Regularly review team performance against objectives and take corrective action where necessary<br>3.2 Regularly communicate with the team on policies, plans and other matters affecting the team<br>3.3 Seek the input of team members during the decision making process<br>3.4 Consult the team regarding proposed workplace changes and improvements to processes<br>3.5 Recognise team and individual achievement<br>3.6 Validate team objectives against targets<br>3.7 Determine ongoing nature of the team and either disband, select new objective, incorporate new team members or change team profile |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.7 | • Reviews documentation to identify objectives and organisational requirements |
| Writing | 1.5, 1.6, 2.1, 3.2, 3.5, 3.6 | • Develops material and plans to a specific audience using clear and detailed language in order to convey explicit information, requirements and recommendations |
| Oral | 1.1, 1.2, | • Participates in a verbal exchange of ideas, and elicits the view and opinions of others, by communicating in |


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| | | |
|---|---|---|
| Communication | 2.1-2.5, 3.1-3.5 | a courteous manner, using effective listening and questioning techniques, using appropriate body language, and using appropriate tone and pitch of voice<br>• Presents expectations choosing language appropriate to audience, interacts effectively to remedy issues and disagreements and negotiates outcomes |
| Numeracy | 1.4, 2.1 | • Uses basic maths calculations to calculate timelines and schedule |
| Interact with others | 2.4, 2.5, 3.1-3.7 | • Identifies key triggers for specific emotions and behaviours, and uses a range of strategies to moderate responses that cause unnecessary problems for others<br>• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and taking a leadership role<br>• Demonstrates an increasing awareness of the interplay of factors involved in any group interaction<br>• Recognises the importance of building rapport in order to establish effective working relationships |
| Get the work done | 1.1-1.6, 2.1, 2.2, 3.1 | • Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, actively looking for early warning signs and implementing contingency plans<br>• Takes responsibility for own workload, negotiating some key aspects with others<br>• Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Reflects on ways in which digital systems and tools are used, or could be used, to achieve work goals and begins to recognise strategic and operational applications |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT412 Coordinate | ICAICT412A Coordinate | Updated to meet | Equivalent |


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| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| and maintain ICT work teams | and maintain IT work teams | Standards for Training Packages.<br><br>Minor edit to competency title. | unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT412 Coordinate and maintain ICT work teams

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish and coordinate teams to meet objectives
- prioritise work schedules to meet organisational guidelines
- provide leadership and guidance to others in the application and planning of project tasks
- review the performance of the team.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline business planning processes relevant to the development of information and communications technology (ICT) business solutions, such as when delegating responsibility and authority
- outline team-building techniques
- outline the principles of effective communication
- outline change management systems
- identify the client business domain
- describe conflict resolution practices
- outline current business practices relating to preparing reports
- identify the general features and capabilities of current industry accepted hardware and software products
- identify information gathering techniques
- identify workplace health and safety (WHS) requirements relating to work safety, environmental factors and ergonomic considerations
- outline principles of equal employment opportunity (EEO) and anti-discrimination


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- identify relevant quality assurance practices.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- team members
- organisational policies and operational planning documentation
- current industry products and services.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT413 Relate to clients on a business level

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to formulate, implement, monitor and adjust service level agreements (SLAs).

It applies to individuals who are competent in a wide range of general information and communications technologies (ICT) and provide ICT support to small to medium enterprises (SMEs).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for development of SLA | 1.1 Research organisational service standards, values and culture in order to understand the organisational environment<br>1.2 Investigate and document the goods and services provided by the organisation<br>1.3 Review current service level agreements (SLAs) if appropriate |
| 2. Develop SLA for | 2.1 Research client service needs and preferred level of service |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| consultation | 2.2 Determine level of service to be provided to the client<br>2.3 Develop a draft SLA for the client that incorporates quality, time, target performance and cost specifications |
| 3. Negotiate client support service | 3.1 Conduct a session with the client and present the draft SLA in a clear, concise and comprehensive manner<br>3.2 Present proposed cost and timeframes to the client<br>3.3 Negotiate terms with client and record alterations if required<br>3.4 Clarify areas of uncertainty or disagreement<br>3.5 Document terms of service negotiated with client, and refer document to appropriate person for approval and feedback |
| 4. Monitor, adjust and implement procedures to maintain client focus | 4.1 Assess progress in achieving client support service targets, using organisational systems and procedures<br>4.2 Gather client feedback to improve the provision of client support services where appropriate<br>4.3 Make adjustments to client support service based on client feedback and in line with organisational guidelines<br>4.4 Document changes to SLA and report changes to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 4.1, 4.2 | • Identifies and evaluates complex business documentation in a variety of formats containing technical terminology and financial information to identify organisational standards, SLA requirements and client feedback |
| Writing | 2.3, 3.5, 4.3, 4.4 | • Uses plain English, correct spelling, appropriate grammatical structures and terminology, numerical and financial information, and formatting and document structure relevant to the job role and organisation to develop SLAs |
| Oral | 1.1, 1.2, 2.1, 2.2, | • Elicits client requirements and organisational |


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| | | |
|---|---|---|
| Communication | 3.1-3.4, 4.1, 4.2, 4.4 | information by using effective listening and questioning techniques<br>• Employs a courteous manner, detailed and clear language, appropriate tone, style, and body language, and effective listening and questioning techniques together with reflective responses to present information and negotiate SLAs |
| Numeracy | 2.2, 2.3, 3.1- 3.5, 4.1, 4,3, 4.4 | • Interprets and analyses financial and numerical information from organisational documentation, and uses fractions, decimals and percentages to calculate timelines and cost specifications for SLAs |
| Interact with others | 3.5 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Navigate the world of work | 1.1, 4.1, 4.3 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts |
| Get the work done | 1.2, 2.2, 2.3, 4.1-4.3 | • Develops plans to manage relatively complex tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Takes responsibility for the outcomes of routine decisions related directly to own role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT413 Relate to clients on a business level | ICAICT413A Relate to clients on a business level | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT413 Relate to clients on a business level

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- negotiate client support service provision
- formulate and document a service level agreement (SLA)
- implement the service level agreement
- meet client requirements for support service within quality, time, target performance and cost parameters.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss business practices, including:
  - change management
  - information gathering techniques
  - planning process, including development of information and communications technology (ICT) business solutions
  - the process for the preparation of reports
- outline the general features and vendor product directions of current industry accepted hardware and software products
- explain the legal principles of commercial contracts and service level agreements
- outline relevant organisational policies, plans and procedures, including contracting
- discuss theoretical concepts relating to negotiation and business relationships.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- organisational policies, procedures and SLAs for the ICT industry
- contexts for negotiating SLAs
- current ICT hardware and software products.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT415 Provide one-to-one instruction

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to convey technical information to an individual client for their specific use.

It applies to individuals who are competent in a wide range of general information and communications technologies (ICT), and support clients in technical areas, including instructing others on an individual basis.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine client needs | 1.1 Meet with client to determine learning needs and type of one-to-one instruction required<br>1.2 Decide upon actions for delivery of one-to-one instruction |
| 2. Organise instruction resources | 2.1 Determine the resources required to perform the instruction<br>2.2 Prepare the instruction plan<br>2.3 Acquire the resources according to organisational guidelines |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and prepare the resources for the instruction session<br>2.4 Provide client with details of instruction plan |
| 3. Provide appropriate instruction | 3.1 Provide instruction session to client, using identified instructions<br>3.2 Document the instruction session according to organisational guidelines<br>3.3 Refer further instruction requirements or training needs to appropriate person as required |
| 4. Obtain client feedback | 4.1 Create or obtain an evaluation and feedback form or other feedback mechanism according to organisational guidelines<br>4.2 Obtain client evaluation and feedback to ensure the requirements of the client are met<br>4.3 Review client feedback and discuss suggestions with appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.3, 4.3 | • Reviews documentation to identify relevant information relating to the client learning needs and delivery method |
| Writing | 2.2-2.4, 3.2, 4.1 | • Uses correct grammar and spelling, and plain English, and translates technical terminology in order to convey and obtain explicit information for a specific audience |
| Oral Communication | 1.1, 2.1-2.4, 3.1, 3.3, 4.2, 4.3 | • Uses correct tone, pitch and volume, clear diction, plain English and simple sentence structure, and effective listening and questioning techniques when conducting instruction sessions, liaising with the client and obtaining feedback |
| Interact with others | 3.1, 3.3 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |


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| | | |
|---|---|---|
| Navigate the world of work | 2.3, 3.2, 4.1 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts |
| Get the work done | 1.2, 2.1, 2.3 | • Uses a combination of planning processes and an increasingly intuitive understanding of context to identify relevant information, including necessary resources and time required to undertake tasks<br>• Takes responsibility for the outcomes of routine decisions related directly to own role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT415 Provide one-to-one instruction | ICAICT415A Provide one-to-one instruction | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT415 Provide one-to-one instruction

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the instruction required by client
- acquire and prepare associated resources
- demonstrate empathy and understanding of the learner and accommodate different cultures
- convey technical information to individual clients for their specific use in a clear, concise and coherent manner
- convey the meanings of technical jargon.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify delivery and evaluation methods
- discuss adult learning principles and styles
- outline communication and facilitation techniques
- discuss critical behaviour issues and problems that can occur with one-on-one instruction
- describe the general features and capabilities of current industry accepted hardware and software products
- describe the functions and features of common operating systems (OS)
- identify and describe hardware and software supported by the organisation
- recognise the availability of in-house or vendor support
- identify and describe common information and communications technology (ICT) terms and terminology
- describe security and network guidelines and procedures


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- outline sources and availability of technical and organisational systems
- specify telephone, fax and online functions and procedures
- identify and incorporate work group procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to client requirements either directly or through a peer or supervisor.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT416 Contribute to the development of strategic plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to participate in the planning process and to contribute to the development of strategic plans.

It applies to individuals who work in a senior capacity within small-to-medium enterprises (SMEs) and are competent in a wide range of general information and communications technologies (ICT).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan for strategy | 1.1 Participate in planning committee and clarify roles of people involved in process<br>1.2 Participate in identifying issues that the planning process should address<br>1.3 Identify information that must be collected |
| 2. Investigate the current environment | 2.1 Investigate mission and vision statements of the organisation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Investigate current internal and external environment of the organisation |
| 3. Participate in feedback session | 3.1 Identify most important issues facing the organisation, using information gathered<br>3.2 Undertake a review session with appropriate persons to confirm issues identified<br>3.3 Identify objectives and strategies for the organisation |
| 4. Finalise and validate plan | 4.1 Create a written plan to document mission, vision, issues, objectives and strategies of the organisation<br>4.2 Submit written plan to appropriate persons for approval<br>4.3 Review feedback and make alterations where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 2.1, 2.2, 4.3 | • Identifies, analyses and evaluates a range of online and written complex texts to obtain organisational and industry information relevant to strategic planning |
| Writing | 4.1, 4.3 | • Integrates information and ideas from a number of sources, using correct grammar and spelling, specialised and cohesive language, and appropriate document structures to produce reports |
| Oral communication | 1.1-1.3, 2.1, 2.2, 3.2, 4.2 | • Elicits the view and opinions of others by using effective listening and questioning techniques, appropriate tone, style and body language, and by giving reflective responses<br>• Participates in a verbal exchange of ideas/solutions and uses detailed and clear language to clarify and present information |
| Navigate the world of work | 2.1 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts, and appreciates the importance of identifying and responding to protocols in new situations |


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| | | |
|---|---|---|
| Interact with others | 4.2 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1-1.3, 2.1, 2.2, 3.1, 3.3, 4.1 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Makes a range of critical and non-critical decisions in various situations, taking a range of constraints into account |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT416 Contribute to the development of strategic plans | ICAICT416A Contribute to the development of strategic plans | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT416 Contribute to the development of strategic plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine criteria and issues for planning process
- undertake feedback session to identify issues, goals and outcomes that meet stakeholder requirements
- create a written plan documenting objectives and strategies of organisation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the process of information gathering techniques
- describe quality assurance practices
- outline the components of the business planning process relevant to the development of strategic plans
- discuss current business practices in preparing reports, particularly for contributing to the development of a strategic plan that identifies:
  - final expected results
  - details how these results will be achieved.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a site and personnel where a strategic business plan may be developed


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- detailed information relating to current needs and project requirements of business
- client expectations brief
- business mission, vision statements and objectives.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT417 Identify, evaluate and apply current industry-specific technologies to meet industry standards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify, evaluate and apply industry specific technologies to ensure that the quality of the entire business process is maintained to the highest possible level.

It applies to individuals who support information and communications technology (ICT) activities in the workplace across a wide range of ICT areas, including technical support, network administration, programming, testing, web technologies, software applications and digital media technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to identify and evaluate industry specific technologies | 1.1 Identify technologies specific to an industry sector<br>1.2 Acquire industry-specific technologies<br>1.3 Identify, classify and use industry specific technologies for the benefit of the organisation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Apply industry specific technology to assist in solving organisational problems | 2.1 Conduct testing of industry specific technologies<br>2.2 Apply features and functions of industry specific technologies to provide a suitable solution to an identified problem<br>2.3 Demonstrate depth of knowledge of enabling technologies to an accepted industry standard<br>2.4 Access and use sources of information relating to the industry specific technologies |
| 3. Review and evaluate industry-specific technology performance | 3.1 Review and evaluate industry specific technologies for performance, usability and benefit to the organisation<br>3.2 Determine environmental considerations involved with using the technologies<br>3.3 Seek feedback from users where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.1-1.3, 2.3, 2.4 | • Investigates, evaluates and applies information from a range of complex and technical texts to expand own knowledge and identify industry specific technologies that will benefit the organisation |
| Reading | 1.1, 1.3, 2.1, 2.4, 3.2, 3.3 | • Identifies and interprets technical online and hard copy documentation containing complex terminology and diagrams to identify industry specific technologies that will benefit the organisation, and to determine environmental considerations |
| Oral Communication | 1.1-1.3, 2.4, 3.1-3.3 | • Elicits information and feedback by using effective listening and questioning techniques to identify and evaluate industry specific technologies<br>• Uses clear, easy-to-understand language and translates industry specific terminology into plain English when talking to users and when necessary |
| Navigate the world of work | 2.4, 3.2 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and |


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| | | |
|---|---|---|
| | | responding to protocols in new situations<br>• May recognise problems that have the potential to become legal issues and takes steps to address them before they escalate |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1 | • Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology and when seeking to understand the potential of new technology<br>• Develops plans to manage relatively complex non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT417 Identify, evaluate and apply current industry specific technologies to meet industry standards | ICAICT417A Identify, evaluate and apply current industry specific technologies to meet industry standards | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT417 Identify, evaluate and apply current industry-specific technologies to meet industry standards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify new and emerging industry specific technologies
- apply and evaluate features and functions of identified industry specific technologies to an industry standard.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss current industry specific technology trends and directions, and the major standards
- outline vendor product directions
- describe the general features, capabilities and application of current industry hardware and software products
- discuss information gathering techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:


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- a site where industry specific technologies may be used
- industry specific technologies currently used in industry
- documents detailing workplace health and safety (WHS) standards, environmental guidelines and organisational requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to maintain professional and ethical conduct, as well as to ensure that personal information of stakeholders is handled in a confidential and professional manner when dealing with stakeholders in an information and communications technology (ICT) environment.

It applies to ICT personnel who are required to gather information to determine the organisation's code of ethics, and protect and maintain privacy policies and system security.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Protect intellectual property | 1.1 Identify current legislation and standards relating to intellectual property and copyright<br>1.2 Investigate current organisational copyright policy<br>1.3 Adhere to organisational policy and current legislation in work practices |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Contribute to copyright policy | 2.1 Contribute to the creation or updating of the organisation's copyright policy and procedures to align with legislation and industry standards<br>2.2 Distribute new or revised policy and procedures to stakeholders |
| 3. Protect rights of stakeholders | 3.1 Identify and document the relevance of legislation and standards to organisational outcomes<br>3.2 Investigate and review organisational privacy policy and procedures<br>3.3 Investigate and review organisational code of ethics<br>3.4 Determine the integrity, confidentiality, security and availability of information as required by organisational policy<br>3.5 Maintain confidentiality and proprietary rights of stakeholder interests |
| 4. Contribute to privacy policy | 4.1 Contribute to the creation or updating of the organisational privacy policy and procedures to align with privacy legislation<br>4.2 Distribute new or revised policy and procedures to stakeholders<br>4.3 Implement new work procedures and collect feedback from stakeholders<br>4.4 Ensure the integrity, confidentiality, security and availability of information as required by organisational policy |
| 5. Maintain privacy policy | 5.1 Review work practices to ensure application of privacy policy and procedures<br>5.2 Maintain the integrity, confidentiality, and availability of information as required by organisational privacy policy<br>5.3 Review work practices to ensure system security according to organisational privacy policy |
| 6. Contribute to creation of ethics code | 6.1 Assist in developing or updating a code of ethics to align with legislation and standards for the organisation<br>6.2 Distribute the new ethics code to stakeholders and collect feedback<br>6.3 Implement new ethical work procedures and collect feedback<br>6.4 Review ethical work practices and feedback to ensure application of the code |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 7. Maintain ethics code | 7.1 Perform regular checks to ensure stakeholders understand and are continuing to apply the code of ethics in the workplace<br>7.2 Establish a review and grievance procedure to enable confidential reporting of any ethical issues<br>7.3 Interview and regularly follow up with stakeholders to ensure they are receiving consistent and appropriate service in dealing with the code of ethics |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.1-3.4, 4.3, 5.1, 6.1, 6.3, 6.4 | • Identifies, analyses and evaluates complex text to determine legislative and organisational standards, applies the information to determine the effectiveness of current organisational policies and processes |
| Writing | 2.1, 3.1, 4.1, 6.1, 7.2 | • Integrates information and ideas from a range of sources, utilising appropriate support materials and specialised and cohesive language in a format and style appropriate to the audience and organisation |
| Oral Communication | 2.1, 4.1, 4.3, 6.1-6.3, 7.1, 7.3 | • Articulates ideas and requirements clearly, based on techniques appropriate to audience and environment<br>• Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning |
| Navigate the world of work | 1.1-1.3, 2.1, 3.1-3.4, 5.2, 5.3, 6.1 | • Keeps up to date on changes to legislation or regulations relevant to own rights and responsibilities, and considers implications of these when negotiating, planning and undertaking work |
| Interact with others | 2.2, 4.2, 6.2 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |


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| | | |
|---|---|---|
| Get the work done | 3.5, 4.3, 4.4, 5.1-5.3, 6.3, 6.4, 7.1, 7.2 | • Uses digital technologies and systems safely, legally and ethically when gathering, storing, accessing and sharing information, with a growing awareness of the permanence and transparency of all activities<br>• Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses each experience to reflect on the ways in which variables impact on decision outcomes and to gain insights into what constitutes effective decision making in different contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment | ICAICT418A Contribute to copyright, ethics and privacy in an IT environment | Updated to meet Standards for Training Packages.<br><br>Minor edit to title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT418 Contribute to copyright, ethics and privacy in an ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse legislation and standards relating to professional conduct and privacy in the information and communications technology (ICT) industry
- contribute to the development of a code of ethics and monitor the workplace to ensure code of ethics is being applied and is appropriate
- contribute to the development of a privacy policy and monitor the workplace to ensure the policy is being applied and is appropriate.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss codes of ethics pertinent to computing industry
- discuss federal and state or territory legislation and policy relevant to an ICT environment and relating to:
  - access and equity
  - copyright and intellectual property
  - workplace health and safety (WHS)
  - privacy
- outline organisational communication processes and procedures
- outline organisational requirements for customer service
- discuss the security features of server operating systems
- explain system security procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- relevant organisational policies, legislation and standards documentation
- industry codes of practice.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT419 Work effectively in the digital media industry

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to work effectively as an individual or in a team environment in the digital media industries.

It applies to individuals who use digital media technologies to work in the information and communications technology (ICT) industry as digital media designers, developers, programmers, contractors or digital media authoring specialists.

No licensing, legislative or certification requirements apply to this unit at the time of publication

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Communicate effectively with others | 1.1 Research and analyse information sources and data related to the digital media industry<br>1.2 Engage with key players in the organisation using a range of communication tools and media<br>1.3 Plan and develop a communication strategy for an enterprise or workplace and clients<br>1.4 Prepare reports in a variety of formats and media |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Perform own work effectively | 2.1 Develop a work plan and schedule<br>2.2 Respond to requests and resolve client queries and issues as they arise<br>2.3 Apply legislative and regulatory requirements<br>2.4 Apply industry codes of practice and guidelines |
| 3. Review own communication and work effectiveness, and make improvements | 3.1 Seek and respond positively to comments and feedback from peers and clients using evaluation techniques<br>3.2 Review own communication strategies and practices, and make continuous improvements<br>3.3 Review own work plan and schedule against milestones or key performance indicators (KPIs), and make improvements<br>3.4 Undertake training and professional development activities<br>3.5 Participate in discussions and forums, and generate ideas for improvement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.2-3.5 | • Builds on prior knowledge by analysing own performance, ascertaining areas of need and investigating and participating in a range of learning programs |
| Reading | 1.1, 3.2-3.4 | • Analyses and compares a range of textual and diagrammatic information related to the digital media industry in order to develop a communications solution<br>• Recognises and interprets a large range of computer generated text, icons and images |
| Writing | 1.2-1.4, 2.1, 3.2, 3.3 | • Uses correct spelling and grammar, plain English and terminology specific to the digital media industry to produce documents, plans, schedules and reports, and liaise with key stakeholders |
| Oral | 1.1, 1.2, 2.2, 3.1, | • Elicits and evaluates information using project |


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| | | |
|---|---|---|
| Communication | 3.4, 3.5 | related terminology and effective listening and questioning techniques<br>• Uses plain English and, where necessary, project related terminology to liaise with clients, present information and obtain feedback |
| Navigate the world of work | 2.3, 2.4 | • Keeps up to date on changes to legislation or regulations relevant to own rights and responsibilities, and considers implications of these when negotiating, planning and undertaking work |
| Interact with others | 1.2 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and taking a leadership role on occasion |
| Get the work done | 1.1, 1.3, 1.4, 2.1, 2.2, 3.2, 3.3 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• In familiar contexts, responds intuitively to problems requiring immediate attention, quickly drawing on past experience to devise solutions<br>• Uses a range of digitally based technology and applications to access and filter data, extract, organise, integrate and share relevant information in increasingly effective ways<br>• Uses each experience to reflect on the ways in which variables impact on outcomes and to gain insights into what constitute effective strategies and practices for future work |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT419 Work effectively in the digital media industry | ICAICT419A Work effectively in the digital media industry | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT419 Work effectively in the digital media industry

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and analyse information and communicate effectively using a range of media and formats
- perform according to work plan and organisational requirements and values
- follow and apply requirements of legislation and regulations
- review and implement improvements to own work and communication
- review own communication strategies and practices and identify areas for improvement
- review work plan and schedule key milestones
- carry out professional development activities related to a work plan
- seek and respond to client queries and feedback.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list current industry accepted hardware and software digital media products and discuss their features and capabilities
- discuss the work health and safety (WHS) standards that apply to working in the digital media industries
- outline the operational environment, including customer base, company products and services
- explain the importance of communication and work plans in a team environment
- outline organisational:
  - code of conduct and values that are consistent with the organisational mission
  - policy and procedures


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  - systems, management structure and governance arrangements
- discuss the principles of equal employment opportunity (EEO) and anti-discrimination
- outline the role and positioning of digital media within the overall business objectives of the organisation
- recognise and define digital media terminology
- describe the roles and responsibilities of personnel in a digital media industry
- identify and outline current federal and state legislative and regulatory requirements, codes of practice and policy relating to work in a digital environment.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a range of current industry information
- appropriate ICT equipment and technology to research and analyse industry information.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT420 Develop client user interface

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and document a client user interface that integrates with front-end applications.

It applies to individuals who work in small-to-medium enterprises (SMEs) as software designers and developers and have achieved a degree of autonomy.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare design for interface | 1.1 Review requirements and other documentation to determine user needs<br>1.2 Investigate system environment to determine the impact of user interface design<br>1.3 Review organisational goals to ensure consistency with organisational styles<br>1.4 Define data query and report formats for the user interface design where appropriate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Document needs and findings, and obtain approval for the proposed interface from the appropriate person |
| 2. Design and document user interface | 2.1 Design menu structures according to requirements and acceptance criteria, and following design principles<br>2.2 Design screen dialogues according to requirements and acceptance criteria, and following design principles<br>2.3 Design batch procedures where appropriate to technical specifications and acceptance criteria<br>2.4 Design online help and tutorials for the prototype, and following design principles<br>2.5 Document prototype according to organisational goals<br>2.6 Submit prototype to appropriate person for sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4 | • Identifies and interprets a variety of hard copy and online technical and design information to identify system environment, organisational requirements and clarify user requirements |
| Writing | 1.4, 1.5, 2.1-2.5 | • Uses correct spelling and grammar, plain English and specific terminology to produce documents and tutorials to organisational guidelines and user requirements<br>• Uses the appropriate programming syntax and conventions to perform the job role<br>• Uses concise plain English and identifies and applies organisational designs, styles and interface, writing principles consistently on titles, text links, buttons, error messages and other interface objects |
| Oral Communication | 1.1-1.5, 2.6 | • Elicits and evaluates information using effective listening and questioning techniques<br>• Uses simple and relevant language to confirm understanding of requirements, liaise with the client and obtain feedback |


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| | | |
|---|---|---|
| Navigate the world of work | 1.3, 2.5 | • Considers the implications of organisational policies and procedures when planning and undertaking work |
| Interact with others | 2.6 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1, 1.2, 1.4, 2.1-2.3 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Uses a range of digitally based technology and applications to access and filter data, extract, organise, integrate and share relevant information in increasingly effective ways |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT420 Develop client user interface | ICAICT420A Develop client user interface | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT420 Develop client user interface

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine impact of user interface design in the system environment and identify appropriate data query and report formats
- design menu structures according to design principles
- design screen dialogues in line with requirements and acceptance criteria
- design batch procedures
- develop online help and tutorials for prototype.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify client business area
- discuss current industry design principles
- identify the general features and capabilities of current industry accepted hardware and software products
- identify general features and capabilities of current industry accepted user interfaces
- identify front-end systems
- discuss GUI and web design principles.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:


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- design specifications
- organisational standards for documentation and version control
- project management process and hierarchy
- a usability test plan
- agreed usability metrics.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT421 Connect, maintain and configure hardware components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install, configure and maintain personal computer devices, including mobile devices according to client and user requirements.

It applies to individuals who utilise a range of technical skills to plan and implement activities to connect system components.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify hardware components | 1.1 Identify different types of personal computer devices<br>1.2 Identify and categorise the different personal computer components, including mobile personal computer components<br>1.3 Define the purpose and characteristics of the different personal computer component categories<br>1.4 Distinguish between the different types of devices within |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | each personal computer component category |
| 2. Identify types of peripheral hardware components | 2.1 Identify and categorise the different peripheral hardware components<br>2.2 Define the purpose and characteristics of the different peripheral hardware components<br>2.3 Distinguish between the different types of devices within each peripheral hardware component category |
| 3. Install and configure personal computer components | 3.1 Install and configure personal computer components<br>3.2 Install and configure mobile personal computer components<br>3.3 Develop plans, with prioritised tasks and contingency arrangements, for the installation and configuration of selected components with minimum disruption to clients<br>3.4 Liaise with appropriate person to obtain approval for the plans<br>3.5 Install and configure components according to plan, installation procedures and organisational requirements<br>3.6 Use appropriate testing tools to test components for error-free performance<br>3.7 Identify and solve identified problems<br>3.8 Test and enhance system performance, using knowledge of the system, to meet organisational benchmarks<br>3.9 Document the installation and configuration process according to organisation guidelines<br>3.10 Develop and document a maintenance plan and schedule based on vendor specifications for the installed components |
| 4. Install and configure print devices | 4.1 Install and configure print devices<br>4.2 Detect and identify common printer issues<br>4.3 Undertake printer issue resolution to meet client requirements |
| 5. Evaluate modified system | 5.1 Collect client or user feedback and analyse against client requirements<br>5.2 Correct identified shortcomings in the system and record actions |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.1, 2.3, 3.5, 3.6, 5.1 | • Identifies, interprets and analyses online and hard copy documentation containing complex information and communications technology (ICT) related terminology, acronyms and concepts |
| Writing | 3.3, 3.9, 3.10, 5.2 | • Uses correct spelling, grammar and plain English, together with the ICT specific terminology, diagrams, and syntax to convey explicit recommendations, requirements and information |
| Oral Communication | 1.3, 2.2, 3.4, 5.1 | • Converts highly technical language and terminology to plain English to communicate ideas and plans, and gather feedback from clients |
| Numeracy | 1.4, 2.3 | • Recognises and interprets numerical data associated with device and component specifications |
| Navigate the world of work | 3.5, 3.8, 3.9 | • Keeps up to date with organisational standards and procedures relevant to own rights and responsibilities, and considers implications of these when negotiating, planning and undertaking work |
| Get the work done | 1.1-1.4, 2.1, 2.3, 3.1-3.3, 3.6- 3.8, 3.10, 4.1-4.3, 5.1, 5.2 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• In familiar contexts, responds intuitively to problems requiring immediate attention, quickly drawing on past experience to devise solutions<br>• Considers purpose, needs and limitations when selecting devices and applications for different tasks<br>• Uses each experience to reflect on the ways in which variables impact on outcomes and to gain insights into what constitute effective strategies and practices for future work |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT421 Connect, maintain and configure hardware components | ICAICT421A Connect, maintain and configure hardware components | Updated to meet Standards for Training Packages<br><br>Minor edits to clarify intent of performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT421 Connect, maintain and configure hardware components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install components across a variety of situations and account for unexpected contingencies
- modify system's hardware, internal hardware and peripheral hardware components to meet client requirements
- identify and plan the modification and connection of hardware, internal hardware and peripheral hardware components according to vendor and technical specifications
- test components and rectify identified problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and categorise the different types of personal computer devices, hardware, internal hardware and peripheral hardware components
- outline environmental considerations in e-waste disposal
- discuss systems diagnostic software
- identify areas of the operating system (OS) related to configuration and testing
- identify current industry accepted hardware and software products
- outline organisational guidelines
- outline organisational requirements
- identify system's current functionality
- identify vendor specifications and requirements for component installation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- personal computer devices, hardware, internal hardware and peripheral hardware components for installation and configuration
- current industry standard performance testing software
- documents detailing organisational guidelines and requirements
- technical manuals, tools and test equipment.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT422 Participate in ICT services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply the principles of service management when working in an information and communications technology (ICT) service desk environment.

It applies to individuals who work in ICT service roles and are responsible for providing ICT service desk support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to work on a service desk | 1.1 Identify policy and procedures of service desk quality<br>1.2 Apply concepts and terminology associated with a service desk environment<br>1.3 Use appropriate service principles |
| 2. Support a service desk | 2.1 Use service desk systems to open a new service call<br>2.2 Inform customer of the progress of the call using service |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | principles<br>2.3 Escalate a service desk call following service principles<br>2.4 Implement service desk closure principles<br>2.5 Seek user feedback following closure of a service desk call |
| 3. Apply continuous improvement to service desk | 3.1 Review service desk records<br>3.2 Plan methods of improving performance<br>3.3 Document proposed improvements and submit to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1 | • Identifies and interprets textual and organisational documentation containing ICT specific terminology to service desk quality, and review records |
| Writing | 2.5, 3.3 | • Uses clear, concise language, correct spelling and grammar, and relevant ICT terminology to obtain feedback and document proposed improvements |
| Oral Communication | 1.2, 1.3, 2.1-2.5 | • Employs a courteous manner, appropriate tone, detailed and clear language, specific ICT terminology, and effective listening and questioning techniques together with reflective responses to elicit customer information and give and receive feedback |
| Interact with others | 3.3 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1, 1.2, 2.1, 2.4, 3.2 | • Takes responsibility for defining key aspects of own workload, balancing own needs and priorities with customers' needs<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new |


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| | | technology |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT422 Participate in ICT services | ICAICT422A Participate in IT services | Updated to meet Standards for Training Packages.<br><br>Minor edit to title | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT422 Participate in ICT services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- provide service desk support
- plan and document strategies to improve service desk performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline:
  - enterprise escalation policy and procedures
  - industry best practice in information and communications technology (ICT) service desk support
- identify and describe:
  - basic technical service management terminology
  - legislation, codes of practice and other formal agreements that directly impact on resolution processes
  - quality assurance of processes and procedures relating to service desk
  - service management relating to service desk.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- an ICT service desk environment


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- current service logs and procedures
- service desk software
- customer contact technologies currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT423 Select cloud storage strategies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse business requirements, and to select the best strategies for providing a cloud storage solution.

It applies to those engaged in developing a cloud storage strategy for an enterprise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan for the implementation of a cloud storage solution | 1.1 Review the business requirements and identify the enterprise standards<br>1.2 Review the major characteristics relating to cloud storage, and identify the advantages and disadvantages of its use<br>1.3 Review the suitability of "Big Data" in the cloud storage solution |
| 2. Select strategies for implementing cloud storage solutions | 2.1 Research, and review, the major cloud storage applications to determine possible cloud storage business needs<br>2.2 Identify the most relevant business functions for cloud |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | storage deployment<br>2.3 Evaluate possible providers of cloud storage solutions<br>2.4 Review service level agreements (SLAs) and identify any hidden costs<br>2.5 Develop a cloud storage strategy, according to the identified business data deliverables |
| 3. Evaluate the effectiveness of cloud storage | 3.1 Review and evaluate, cloud storage technologies for performance, usability and benefit to the enterprise<br>3.2 Document and action the required improvements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1 | • Draws on a broad range of strategies to build and maintain understanding throughout complex texts<br>• Organises, evaluates and critiques ideas, and information, from a wide range of complex texts |
| Writing | 1.1-1.3, 2.5, 3.2 | • Generates complex written texts, demonstrating control over a broad range of writing styles and purposes |
| Numeracy | 2.4 | • Analyses and synthesises highly-embedded mathematical information, in a broad range of tasks and texts |
| Navigate the world of work | 1.1, 2.5, 3.1 | • Develops, and implements, strategies that ensure that the organisational policies, procedures, and regulatory requirements are met<br>• Monitors and reviews the organisation’s policies, procedures, and adherence to legislative requirements, in order to implement and manage change |
| Get the work done | 1.2, 2.5, 3.2 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Gathers and analyses data, and seeks feedback, to |


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| | | |
|---|---|---|
| | | improve plans and processes<br>• Makes high-impact decisions in a complex and diverse environment, using input from a range of sources<br>• Explores and incubates, new and innovative ideas through unconstrained analysis and critical thinking, to develop and improve the organisation's goals |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT423 Select cloud storage strategies | ICAICT423A Select cloud storage strategies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT423 Select cloud storage strategies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review the benefits and challenges associated with implementing a cloud storage solution
- determine and document the most appropriate cloud storage solutions for the enterprise, and effective strategies for their implementation
- review the implementation of a cloud storage strategy, and identify any areas for improvement.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the business types that may have cloud storage requirements
- define the current trends and directions in information and communications technology (ICT), and the major industry technology standards used in cloud storage services
- analyse the advantages and disadvantages of cloud storage
- define "Big Data" and its application within the corporate environment
- identify and specify, the vendor product directions in cloud storage services
- identify and describe, current industry hardware and software products, and their general features, capabilities and application, especially where applied to cloud storage technologies
- define the characteristics of cloud storage that must be included in service level agreements
- describe the additional costs that impact on a cloud storage strategy.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a site where cloud storage technologies may be used
- the cloud storage technologies currently used in industry
- service level agreements (SLA) documentation relevant to cloud storage scenarios
- documentation detailing work health and safety (WHS) standards, environmental guidelines, and enterprise requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT501 Research and review hardware technology options for organisations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research and evaluate existing and emerging technologies and hardware solutions to support organisational strategic goals.

It applies to individuals in senior roles who administer and manage information and communications technology (ICT) support in small-to-medium enterprises (SMEs) using a wide range of general ICT technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine organisational needs | 1.1 Establish organisational needs and selection criteria for new technology<br>1.2 Review strategic goals and determine future requirements<br>1.3 Assess physical infrastructure and financial parameters against strategic goals |
| 2. Research vendors, | 2.1 Determine suitable suppliers and vendors |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| suppliers and ICT industry specialists | 2.2 Source information from suppliers and vendors<br>2.3 Assess vendor information against industry standards<br>2.4 Review emerging standards and applications for compatibility with supplier and vendor information |
| 3. Evaluate and report on hardware technology options | 3.1 Review and test hardware to identify suitability for organisational requirements<br>3.2 Identify possible project risks associated with identified hardware<br>3.3 Document findings in a report and present to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 2.1-2.4 | • Investigates, evaluates and applies information from a range of complex and technical texts to expand own knowledge in order to identify hardware technology that will support strategic goals |
| Reading | 1.1-1.3, 2.1-2.4, 3.1- | • Identifies, interprets and evaluates technical online and hard copy documentation containing complex terminology and diagrams to identify hardware technology that will benefit the organisation |
| Writing | 3.3 | • Uses correct spelling and grammar, and specialised, cohesive language in a format and style appropriate to the specific audience to present an evaluation of hardware technology |
| Oral Communication | 1.1-1.3, 2.1, 2.2, 2.4, 3,1, 3.2 | • Uses effective listening and questioning techniques, and clear, easy-to-understand language, and translates technical terminology into plain English when clarifying strategic goals and assessing project risks<br>• Uses large range of technical terminology when eliciting information about new and emerging hardware technologies |


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| | | |
|---|---|---|
| Numeracy | 1.3, 3.2 | • Interprets financial information and applies mathematical calculations relating to time constraints and budgetary information |
| Navigate the world of work | 2.3, 2.4 | • Considers the implications of organisational policies and procedures when planning and undertaking work |
| Interact with others | 3.5 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1-1.3, 2.1, 3.1, 3.2 | • Applies formal processes when planning more complex tasks, producing plans with logically sequenced steps and reflecting some awareness of resource constraints<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT501 Research and review hardware technology options for organisations | ICAICT501A Research and review hardware technology options for organisations | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT501 Research and review hardware technology options for organisations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and plan approaches to technical problems or management requirements
- access and convey conceptual information regarding emerging technology in relation to organisational needs
- evaluate information, using it to forecast for planning or research purposes
- recommend technology options
- document findings in a report.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe and explain the business planning process relevant to researching technology
- outline and explain client business needs that can be satisfied by the provision of information and communications technology (ICT) products and services
- describe and outline current business practices in preparing reports
- identify and outline current industry and technology information sources
- outline general features and capabilities of current industry accepted hardware, cabling and software products, and identify emerging trends and product design
- discuss equipment performance benchmarking
- identify industry networks, key individuals and organisations within the ICT industry
- identify information gathering techniques
- outline quality assurance practices to promote reliable investigation processes
- identify vendor product directions:
  - access and security products


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- next generation networks
- self-configuring asymmetric digital subscriber line (ADSL) or cable modem-router-switch for the small office/home office (SOHO) market
- wireless standards.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- network or computer layout documentation and premises plans
- network components
- equipment specifications
- organisational guidelines
- business plan or model
- journals of industry and professional associations
- relevant standards.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT502 Develop detailed component specifications from project specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse requirements of the project specifications in order to produce a set of high-level component specifications.

It applies to systems designers who are required to produce component specifications for programmers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop components | 1.1 Document behaviour scenarios according to documentation standards<br>1.2 Identify or develop components according to project specifications<br>1.3 Prepare diagrams according to standards |
| 2. Prepare schema | 2.1 Analyse and document component connectivity |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Identify and incorporate data flow iteration<br>2.3 Prepare component action diagrams according to standards |
| 3. Prepare component model | 3.1 Describe roles and responsibilities<br>3.2 Review and update functional requirements<br>3.3 Specify interface components and component relationships<br>3.4 Prepare interaction diagrams according to standards |
| 4. Iterate and review model | 4.1 Conduct walk-through of current model and review functionality<br>4.2 Identify relationships to ensure integration of model<br>4.3 Review class service requirements<br>4.4 Prepare initial test criteria<br>4.5 Implement process for incremental testing |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 3.2, 4.1-4.3 | • Interprets and analyses text with complex terminology, diagrams, code, syntax, icons and symbols to evaluate current system functionality and technical requirements, and develop diagrams using industry specific software |
| Writing | 1.1-1.3, 2.1-2.3, 3.1-3.4, 4.4, 4.5 | • Uses the correct spelling and grammar, clear plain English, task related terminology, and a formal document structure, format and style appropriate to the audience and organisation<br>• Selects suitable vocabulary, terminology, labelling and naming conventions to develop diagrams using industry specific design tools |
| Numeracy | 1.2 | • Interprets numerical information and applies basic mathematical calculations relating to time durations and budgetary information |
| Navigate the | 1.1, 1.3, 2.3, 3.4 | • Recognises and follows explicit and implicit protocols, |


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| | | |
|---|---|---|
| world of work | | and meets expectations associated with own role |
| Get the work done | 1.2, 2.1, 2.2, 3.2, 3.3, 4.1- 4.5 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for efficiency<br>• In familiar contexts, responds intuitively to problems requiring immediate attention<br>• Considers purpose, needs and limitations when selecting devices and applications for different tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT502 Develop detailed component specifications from project specifications | ICAICT502A Develop detailed component specifications from project specifications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT502 Develop detailed component specifications from project specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and document high level component specifications relevant to the project specifications
- analyse and document component connectivity and relationships
- document and review component modelling.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline appropriate design tools and their use
- discuss and explain configuration management
- outline the key features of a cost-benefit analysis
- identify and apply current industry accepted design methodologies and hardware and software products, including broad knowledge of general features and capabilities
- explain data modelling techniques
- describe program development methodologies
- describe quality assurance practices for preparing component models
- outline relevant standards and organisational policies
- specify current system functionality for analysing components.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- technical specifications
- organisational and process goals
- standards for model development
- computer aided software engineering (CASE) tools
- project deliverables
- test plan
- project budget
- outcomes of the business analysis process
- appropriate software and hardware.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT503 Validate quality and completeness of system design specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to check the system design specifications against outcomes and quality standards.

It applies to individuals working as system designers who are required to validate system design specifications to ensure that they meet the required organisational audit standards.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine audit criteria | 1.1 Investigate the system or product for which the quality audit is being performed to understand its functionality<br>1.2 Determine the objectives to be achieved by the quality audit<br>1.3 Determine the scope of the quality audit<br>1.4 Develop a list of audit criteria and quality benchmarks<br>1.5 Develop a metric to classify the audit criteria<br>1.6 Determine the audit technique or methodology to be |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | followed<br>1.7 Examine and detail the resources available to carry out the audit<br>1.8 Document the objectives, scope, criteria, technique and resources in an audit plan |
| 2. Audit aspects of the final system | 2.1 Use the audit criteria to collect evidence about the functionality and quality of the final system, including documentation<br>2.2 Use a checklist to monitor audit progress<br>2.3 Document audit outcomes as the audit progresses |
| 3. Review and confirm contract and specifications | 3.1 Review system contract against audit outcomes<br>3.2 Compare system functionality against audit outcomes and system contract<br>3.3 Identify items of non-compliance where audit outcomes do not meet performance targets or fall short of contract requirements<br>3.4 Review system procedures for corrective action<br>3.5 Document items of non-compliance and proposed corrective action |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 1.7, 3.1-3.3 | • Interprets, analyses and evaluates text with complex terminology, diagrams, code, syntax, icons and symbols to: evaluate current system functionality, determine audit objectives, scope and criteria, and review audit findings |
| Writing | 1.4, 1.5, 1.7, 1.8, 2.2, 2.3, 3.5 | • Uses plain English, appropriate grammatical structures and terminology, diagrams and flow charts, numerical information, and formatting and document structure relevant to the job role and organisation to develop an audit plan and document |


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| | | |
|---|---|---|
| | | audit results |
| Oral Communication | 1.1-1.3, 1.7, 2.1, 3.1, 3.4 | • Uses effective listening and open questioning techniques to obtain information and elicit the view and opinions of others<br>• Uses appropriate questioning strategies, avoiding loaded or leading questions, when collecting evidence<br>• Uses specific and complex system/product terminology when applicable, translating complex terms into plain English as required by the audience |
| Numeracy | 1.2-1.5, 3.1-3.4 | • Interprets and analyses numerical and financial information, and applies mathematical calculations and financial functions related to performance and financial metrics developed |
| Navigate the world of work | 1.4 | • Recognises and follows explicit and implicit protocols, and meets expectations associated with own role |
| Get the work done | 1.1-1.7, 3.2-3.4 | • Applies formal processes when planning more complex tasks, producing plans with logically sequenced steps and reflecting some awareness of resource constraints<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot<br>• Uses analytical processes in a variety of situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT503 Validate quality and completeness of system design specifications | ICAICT503A Validate quality and completeness of system design specifications | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT503 Validate quality and completeness of system design specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine audit criteria
- conduct an audit
- review system procedures for non-compliance
- propose corrective actions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline acceptance criteria
- translate detailed design principles and specification standards
- discuss fault tolerance technologies
- describe the process of quality audits
- discuss quality levels, both generally and as required by the organisation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- audit tools
- documentation guidelines
- relevant standards and benchmarks


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- service level agreement (SLA)
- archive policies
- acceptance criteria
- ICT security specifications
- live system, including database, system files and designed interface
- technical specifications of system.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT504 Confirm transition strategy for a new system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to confirm a transition strategy to a new system, based on the revised system design and newly developed change management plan.

It applies to individuals who work as part of a team in a range of information and communications technology (ICT) positions, and are required to plan for a transition to new system websites, networks or software.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm delivery and acceptance plan | 1.1 Confirm phased delivery with the client and project team<br>1.2 Confirm method of acceptance and acceptance criteria<br>1.3 Confirm that acceptance test plan is in place and agreed |
| 2. Confirm data take-up plan | 2.1 Identify the data source for each database<br>2.2 Analyse possible integrity constraints<br>2.3 Design the data conversion workflow, taking into |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | consideration data validation, data clean-up and data loading<br>2.4 Identify interface requirements, data take-up method, complexity and effort required<br>2.5 Develop required data conversion contingencies and confirm with appropriate person |
| 3. Confirm cutover plan | 3.1 Agree on the conversion window in operational timescale with appropriate person<br>3.2 Plan and confirm parallel running with appropriate person<br>3.3 Confirm approval of dependencies with appropriate person<br>3.4 Confirm approval of fall-back options with appropriate person<br>3.5 Confirm approval of checkpoints, tests and responsibilities with appropriate person<br>3.6 Confirm approval of resources, tasks and timescales with appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 2.1, 2.2, 2.4 | • Identifies and analyses complex electronic and hard copy documentation, information and data containing specific terminology, diagrams and numerical information to organise conversion and identify data convention contingencies |
| Writing | 1.1-1.3, 2.3, 2.5, 3.1-3.6 | • Uses clear language and plain English with task specific technical terminology to confirm approval for each stage of the conversion<br>• Applies the formal labels, logos, formatting and document structure relevant to the organisation to ensure approval/signoff obtained is valid |
| Oral Communication | 1.1-1.3,<br>2.1, 2.4, 2.5,<br>3.1-3.6 | • Elicits information by using effective listening and open questioning techniques<br>• Articulates strategies clearly and distinctively, based on techniques and language appropriate to audience |


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| | | |
|---|---|---|
| | | and environment, and uses probing, clarifying questions to ensure strategies are understood |
| Numeracy | 1.2, 1.3 | • Interprets and analyses numerical and financial information, and applies mathematical calculations and financial functions related to timeframe, logistics and budgets |
| Get the work done | 2.1- 2.5. 3.2 | • Applies formal processes when planning more complex tasks, producing plans with logically sequenced steps and reflecting some awareness of resource constraints<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot<br>• Uses analytical processes in a variety of situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT504 Confirm transition strategy for a new system | ICAICT504A Confirm transition strategy for a new system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT504 Confirm transition strategy for a new system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- confirm acceptance plan
- develop a data take-up plan
- confirm cut-over plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss and apply conversion strategies
- outline current business practices related to transition strategies
- discuss cut-over strategies
- discuss post-converging strategies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- ICT specifications
- change management plan
- acceptance test plan
- ICT security assurance specifications.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT505 Determine acceptable developers for projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure that development projects are contracted to developers who are able to accomplish the task within the mutually agreed parameters of the project.

It applies to individuals who manage a range of information and communications technology (ICT) projects, including software development, hardware procurement and implementation, network analysis and deployment, and web and/or system development.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Specify development requirements | 1.1 Prepare and document clear specifications for the project<br>1.2 Submit specifications to appropriate person for sign-off and authority to contract developers<br>1.3 Prepare request for tender document if appropriate, using specifications<br>1.4 Prepare and document agreed selection guidelines |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Identify potential developers | 2.1 Investigate potential developers in line with organisational guidelines<br>2.2 Request development quotes from potential developers<br>2.3 Assess submitted quotes against selection guidelines and make a shortlist of potential developers, where appropriate |
| 3. Select a potential developer | 3.1 Assess the capability of developers to do the project work<br>3.2 Confirm that potential developers understand the scope of the work to be undertaken<br>3.3 Conduct a due diligence check where appropriate and assess the quality of developers<br>3.4 Select appropriate developers using selection criteria<br>3.5 Inform developers of their selection according to organisational guidelines |
| 4. Sign off the selection process | 4.1 Prepare contract for signing according to enterprise procedures<br>4.2 Sign contract and prepare developers to commence work according to contract |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.3, 3.1, 3.3 | • Interprets and evaluates a range of documentation containing ICT specific terminology and budgetary information to obtain information relating to project requirements and to identify and select developers |
| Writing | 1.1, 1.3, 1.4, 2.3, 3.5, 4.1 | • Uses correct spelling and grammar, clear plain English, task related terminology, and a formal document structure, format and style appropriate to the audience and organisation |
| Oral Communication | 1.2, 2.1, 2.2, 3.1-3.3, 3.5, 4.2 | • Assumes a formal manner and uses effective listening and questioning techniques to clarify project requirements and elicit information about |


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| | | |
|---|---|---|
| | | the capacity, capability and qualifications of developers |
| Numeracy | 1.1, 2.3, 4.1 | • Interprets and analyses numerical and budgetary information, and applies mathematical calculations to manage timelines and budgets |
| Navigate the world of work | 2.1, 3.5, 4.1 | • Keeps up to date on changes to legislation or regulations relevant to own rights and responsibilities, and considers implications of these when negotiating, planning and undertaking work<br>• Understands how own role meshes with others and contributes to broader work goals |
| Interact with others | 1.2 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1, 1.3, 1.4, 2.1, 2.3, 3.1, 3.3, 3.4, 4.1 | • Uses a combination of formal logical planning processes and an increasingly intuitive understanding of context to identify relevant information and risks<br>• Uses systematic, analytical processes in complex situations, gathering relevant information and identifying and evaluating options against a pre-determined set of criteria<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT505 Determine acceptable developers for projects | ICAICT505A Determine acceptable developers for projects | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT505 Determine acceptable developers for projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- specify requirements for a project
- prepare information for tender document and document selection criteria
- seek suitable developer candidates
- select suitable developers
- prepare and implement contracts procedure.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the processes and procedures relating to business liaison
- summarise business negotiation and interview techniques
- outline the process for tendering and writing tenders
- outline the principles and features for preparing contracts
- identify and describe the state and federal legislative requirements and industry standards that relate to:
  - due diligence
  - codes of practice
  - ethics
  - industry and e-commerce standards
  - contracts.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a business plan
- procurement policies
- selection policies.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT506 Implement process re-engineering strategies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to consider a variety of potential process re-engineering strategies and to make appropriate selections for implementation in an organisation.

It applies to individuals who are senior information and communications technology (ICT) staff required to implement system redesign, and administer and manage ICT support in small-to-medium enterprises (SMEs).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop process re-engineering strategies | 1.1 Research and determine target process for re-engineering action<br>1.2 Develop process re-engineering plan<br>1.3 Determine and document strategic importance of process<br>1.4 Establish and document performance standards and benchmarks for new process |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Seek feedback and suggestions from client on proposed process re-engineering |
| 2. Implement process re-engineering strategies | 2.1 Compare suggestions with process re-engineering plan to determine suitability for business requirements<br>2.2 Incorporate suggestions where appropriate<br>2.3 Implement new process into business structure and leave sufficient scope for changing capacity or upgrades |
| 3. Monitor organisational context | 3.1 Monitor new process to measure performance levels<br>3.2 Determine and document benefits of the new process to the business<br>3.3 Identify and document training needs for staff<br>3.4 Analyse cultural and political impact of the new process<br>3.5 Document new process and disseminate information to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2-1.4, 2.1, 3.2, 3.4 | • Identifies, analyses and evaluates complex online and hard copy documentation containing specific terminology, diagrams and numerical information to develop process re-engineering strategies and determine the benefits and impact of the process on the business |
| Writing | 1.2-1.5, 2.2, 3.2, 3.3, 3.5 | • Uses plain English, appropriate grammatical structures and terminology, diagrams and flow charts, numerical information, and formatting and document structure relevant to the job role and organisation |
| Oral Communication | 1.1, 1.5, 2.3, 3.1, 3.3, 3.5 | • Articulates implementation requirements and strategies clearly, using appropriate tone, style, body language and reflective responses<br>• Uses effective listening and questioning techniques to elicit feedback and to ensure understanding of the implementation process has occurred |


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| | | |
|---|---|---|
| Numeracy | 1.4, 3.1 | • Interprets and analyses numerical and budgetary information, and applies mathematical calculations to evaluate the benefits of the process re-engineering on the business |
| Navigate the world of work | 1.4, 2.1, 3.5 | • Contributes to roles and responsibilities of self and others<br>• Modifies or develops organisational policies and procedures to comply with legislative requirements and organisation goals |
| Interact with others | 1.5, 3.3-3.5 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Elicits feedback and provides feedback to others in order to improve self or workgroup behaviours |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.1-3.5 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities<br>• Applies systematic and analytical decision making processes for complex and non-routine situations<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation and formal and analytical thinking<br>• Uses and investigates new digital technologies and applications to manage and manipulate data and communicate effectively with others in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT506 Implement process re-engineering strategies | ICAICT506A Implement process re-engineering strategies | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT506 Implement process re-engineering strategies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop and document a re-engineering process that supports organisational objectives
- take into consideration the complex interdependencies between organisational and external drivers
- implement a re-engineering process
- monitor and analyse the impact of the process in the organisation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss business case preparation process and how it can be applied to developing organisational strategies
- identify and summarise relevant laws and standards as they apply to process re-engineering strategies, including:
  - benchmarks
  - copyright
  - intellectual property
  - ethics
  - cultural and political diversity
- outline the impact that new processes may have on an organisation
- outline procedures relating to consulting internally and externally.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a process re-engineering plan
- analysis software
- e-business models
- modelling software
- an organisational strategy
- an organisational structure and culture
- a personal computer (PC)
- stakeholder analysis.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT507 Select new technology models for business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify opportunities for using new technology to support and enable efficient models of business.

It applies to individuals who work as senior information and communications technology (ICT) staff in a range of areas and who are required to research innovative approaches to meeting business requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify processes to be improved by the application of a new business model | 1.1 Map existing process flow against relevant performance standards in order to identify areas that may need improvement<br>1.2 Outline emerging models and processes<br>1.3 Identify changes in the technological, client and supply chain environment<br>1.4 Document changes identified and submit to appropriate person for review |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Appraise existing models | 2.1 Analyse existing business models<br>2.2 Investigate business models in use in other similar businesses<br>2.3 Identify and determine relevance of business models in use and under development in other industry sectors<br>2.4 Map existing models in other parts of business supply chain |
| 3. Research new business models | 3.1 Investigate new business models to establish opportunities for improvement<br>3.2 Evaluate opportunities against business requirements<br>3.3 Prioritise and document identified opportunities |
| 4. Select the appropriate model | 4.1 Select a business model that improves the business processes<br>4.2 Develop performance benchmarks to measure the effectiveness of the chosen business model<br>4.3 Model new business process or model and collaborate with other businesses<br>4.4 Document the proposed business model according to business procedures<br>4.5 Forward appropriate document to relevant person for sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1-2.3, 3.1, 3.2 | • Identifies, analyses and evaluates complex text, diagrams, business models and statistical and financial information |
| Writing | 1.1, 1.2, 1.4, 2.4, 3.3, 4.2-4.4 | • Integrates information and ideas from a number of sources, utilising appropriate information ICT modelling tools, and specialised and cohesive language and document structures |
| Oral | 1.1, 1.3, 2.1-2.3, | • Elicits and evaluates information using effective |


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| | | |
|---|---|---|
| Communication | 3.1, 3.2, 4.3, 4.5 | listening and questioning techniques.<br>• Uses simple and relevant language to obtain information, confirm understanding, liaise with the client and appropriate person, and obtain feedback |
| Numeracy | 1.1, 1.4, 2.1, 2.2, 2.4, 3.2, 3.3, 4.2, 4.3 | • Interprets and analyses a range of statistical and financial data relating to business models to analyse the current model, identify current and future needs, and develop new technology models |
| Navigate the world of work | 1.1, 3.2, 4.4 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts |
| Interact with others | 1.4, 4.5 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience, and monitoring impact |
| Get the work done | 1.1, 1.3, 2.1-2.4, 3.1-3.3, 4.1-4.3 | • Uses systematic analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against organisational requirements<br>• Uses and investigates new digital technologies and applications to manage and manipulate data, and communicate effectively with others in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT507 Select new technology models for business | ICAICT507A Select new technology models for business | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT507 Select new technology models for business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify new approaches to using technology or new technology to enable efficient models of business
- determine the appropriate focus of the selected business model in order to achieve the desired performance improvement
- document a new business model.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify benchmark selection and development
- discuss business process design and include:
  - case diagrams
  - business process model and notation
  - activity diagrams
- discuss business-to-business and business-to-customer interface and liaison
- identify relevant copyright and intellectual property issues
- discuss the current technical environment
- outline methods for the determination of the impact of technological change
- summarise the principles of an electronic commerce modelling language (ECML)
- interpret environmental scanning
- interpret design specifications
- outline modelling methodology
- discuss value and supply chain management


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- outline website architecture.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- business systems
- analysis software
- modelling software
- business requirements
- current industry news, forums, lists and chat rooms
- user analysis
- supply and value chain analysis.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT508 Evaluate vendor products and equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to evaluate and test a range of vendor products and equipment against a client's business requirements.

It applies to individuals in a range of information and communications technology (ICT) areas who are required to assess hardware and software products.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish business requirements | 1.1 Identify and prioritise business requirements<br>1.2 Identify conflicting or overlapping business requirements<br>1.3 Specify budget and available resources<br>1.4 Validate business requirements, budget and resource needs with client |
| 2. Identify vendor products and equipment | 2.1 Investigate a representative range of vendor products and equipment |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Identify and document interdependencies<br>2.3 Specify and document technical alternatives available to the business<br>2.4 Determine and document availability of products and equipment<br>2.5 Ensure vendor products and equipment meet Australian or other standards |
| 3. Test vendor products and services | 3.1 Develop valid and reliable test regime with appropriate measurements<br>3.2 Establish test environment, including calibrated measuring equipment<br>3.3 Undertake testing of products or equipment and document results<br>3.4 Undertake revised testing where initial tests are inconclusive or where alternative product configuration may meet business requirements |
| 4. Evaluate vendor products, services and equipment | 4.1 Rate vendor products for quality, performance and support<br>4.2 Rate vendor products for fit with client needs<br>4.3 Establish product limitations, performance, integration capabilities and costs, and compare with established business requirements<br>4.4 Prepare cost-benefit analysis |
| 5. Prepare evaluation report | 5.1 Document product information in order of preference<br>5.2 Recommend preferred product, including the reasoning behind recommendations<br>5.3 Prepare a report containing solution details<br>5.4 Submit report to client for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.2, 2.4, 2.5, 4.1, 4.2 | • Identifies, analyses and evaluates highly technical documents, diagrams, business strategies and statistical and financial information |
| Writing | 1.3, 1.4, 2.2-2.4, 5.1, 5.3 | • Integrates information and ideas from a number of sources using specialised and cohesive language and formal document structures |
| Oral Communication | 1.1, 1.2, 1.4, 2.1-2.4, 5.4 | • Elicits and evaluates information using effective listening and open questioning techniques<br>• Uses simple and relevant language to obtain information, confirm understanding, liaise with the client and obtain feedback |
| Numeracy | 1.1, 1.3, 1.4, 4.3, 4.4, 5.2, 5.3 | • Interprets and analyses a range of statistical and financial data relating to products, equipment and integration costs<br>• Uses a range of software tools to apply statistical and financial functions, and prepare a cost-benefit analysis |
| Navigate the world of work | 2.5 | • Appreciates the legal and regulatory responsibilities related to own work and recognises some legal principles across work contexts |
| Interact with others | 5.4 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1-1.3, 2.1- 2.4, 3.1-3.4, 4.1-4.3 | • Develops plans to manage relatively complex non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Uses systematic, analytical processes in complex non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Actively identifies systems, devices and applications with potential to meet current and/or future needs |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT508 Evaluate vendor products and equipment | ICAICT508A Evaluate vendor products and equipment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT508 Evaluate vendor products and equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish business requirements
- evaluate a range of vendor products and equipment against requirements
- test and select the most appropriate products
- document the selected items and selection rationale.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the relevance and application of the following for evaluating and selecting products:
  - code of ethics
  - international standards
  - vendor products
  - client business domain
  - copyright and intellectual property
  - general features and capabilities of current industry accepted hardware and software products
- discuss current and future technical systems considerations required by business
- discuss the features and function of relevant hardware components and software products, and the interaction between them.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- client functional requirements
- hardware and software specifications from vendors
- test procedures and activities.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT509 Gather data to identify business requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify, analyse and document business requirements.

It applies to individuals working as systems analyst developers and project team leaders, and managers responsible for gathering data to identify business requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify key information sources | 1.1 Identify information repositories across the business<br>1.2 Review current organisational documentation<br>1.3 Develop critical questions to elicit information from key stakeholders using a mixture of open and closed questions |
| 2. Gather data | 2.1 Use a wide range of information gathering techniques<br>2.2 Review reports and other data sources for business information |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Confirm with stakeholders business critical factors relating to current and future directions of the organisation |
| 3. Prepare data analysis for review | 3.1 Analyse group and individual responses to clearly define business priorities<br>3.2 Document data analysis for review according to organisational standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1-2.3, 3.1 | • Identifies, analyses, evaluates and applies complex online and hard copy documentation containing specific terminology, diagrams and numerical information to identify business requirements |
| Writing | 1.3, 2.1, 3.2 | • Uses plain English and appropriate questioning strategies, avoiding loaded or leading questions, when developing information gathering documentation<br>• Uses vocabulary, grammatical structures, terminology, diagrams, numerical information, formatting and structure relevant to the job role and organisation to document the analysis |
| Oral Communication | 1.1, 2.1-2.3 | • Articulates research and resource requirements clearly and directs discussions to elicit the views and opinions of others by using effective listening and open questioning techniques<br>• Uses a range of verbal responses and makes comparisons that show an understanding of topics and concepts |
| Numeracy | 1.2, 2.2, 2.3, 3.1 | • Interprets numerical information and applies mathematical calculations and financial functions to analyse financial information |
| Navigate the world of work | 1.2, 3.2 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and responding to protocols in new situations |


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| | | |
|---|---|---|
| Get the work done | 1.1, 2.1- 2.3, 3.1 | • Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT509 Gather data to identify business requirements | ICAICT509A Gather data to identify business requirements | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT509 Gather data to identify business requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify sources and gather information pertinent to the business requirements
- review and analyse business requirements based on business strategy and current and future directions
- confirm the business critical factors with stakeholders
- prepare data for review
- document data analyse for review according to organisational standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- define the client business domain, so that the business needs are understood by project team and client
- describe the current industry accepted hardware and software products, general features and capabilities suited to the project
- outline the role of stakeholders and the degree of involvement in the process
- specify quality assurance practices required when determining the requirements
- examine the system's current hardware, software and communication functionality.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to a project brief and business documentation.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT510 Determine appropriate ICT strategies and solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse the information and communications technology (ICT) goals, objectives and future requirements for an organisation and determine the best ICT systems solution.

It applies to individuals who administer and manage ICT support and participate in the development of strategic initiatives in small-to-medium enterprises (SMEs).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate ICT needs of the organisation | 1.1 Conduct an analysis process that determines the organisation's current needs and projected ICT requirements<br>1.2 Review the organisational environment and relevant industry changes and trends<br>1.3 Determine ICT goals, objectives and future requirements<br>1.4 Prepare information for appropriate person to determine scope with top-level management |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Contribute to the development of the project goals and objectives | 2.1 Determine project scope according to agreed brief<br>2.2 Align project goals with the ICT goals of the organisation<br>2.3 Determine impact that system or changes will have on the organisation<br>2.4 Document project, goals and impact of changes according to requirements |
| 3. Determine best ICT systems solution | 3.1 Evaluate a range of ICT systems solutions according to project goals<br>3.2 Define high-level hardware, software and communications environment necessary for the proposed systems solution<br>3.3 Develop a feasibility study and a cost-benefit analysis of the proposed solution<br>3.4 Ensure that the proposed solution aligns with the organisation's strategic plan<br>3.5 Forward feasibility study and cost-benefit analysis document to appropriate person for approval and sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.3, 3.1, 3.4 | • Identifies, interprets and evaluates a wide range of organisational documentation, financial and statistical data, and technical documentation containing complex terminology and diagrams |
| Writing | 1.4, 2.4, 3.2, 3.3 | • Uses correct spelling, vocabulary, grammatical structures, ICT specific terminology and document structure relevant to the type of documentation being produced |
| Oral Communication | 1.1-1.3, 2.1- 2.3, 3.1, 3.3, 3.4 | • Elicits the views and opinions of others and obtains information by using effective listening and probing, open questioning techniques<br>• Participates in a verbal exchange of ideas/solutions and uses detailed and clear language to clarify and present information according to requirements and |


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| | | |
|---|---|---|
| | | audience |
| Numeracy | 1.2-1.4, 2.1-2.4, 3.3 | • Interprets and analyses a range of statistical and financial data relating to products, equipment and integration costs<br>• Uses a range of software tools to apply statistical and financial functions, and prepare a cost-benefit analysis |
| Navigate the world of work | 3.4 | • With reference to the organisation's strategic plan, understands how own role meshes with others and contributes to broader work goals |
| Interact with others | 3.5 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.3 | • Uses a combination of formal and logical planning processes and an increasingly intuitive understanding of context to evaluate cost benefits and appropriate solutions<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT510 Determine appropriate ICT strategies and solutions | ICAICT510A Determine appropriate IT strategies and solutions | Updated to meet Standards for Training Packages.<br><br>Minor edit to title | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT510 Determine appropriate ICT strategies and solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse the organisation's current needs and projected information and communications technology (ICT) requirements
- determine the impact of system changes on the organisation
- evaluate and recommend ICT strategies and systems solutions to meet business objectives
- develop a feasibility study and cost-benefit analysis of proposed solution.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline two or more current industry systems development methodologies
- summarise the business planning process relevant to the development of an ICT business solution
- outline current business practices for:
  - preparing business reports
  - facilitation of group interviews
- identify and describe quality assurance practices for ICT solutions
- discuss general features and capabilities of current industry accepted hardware and software products
- describe feasibility studies and cost-benefit analyses in relation to ICT strategies and solutions
- identify information sources for a cost-benefit analysis
- summarise the role and degree of stakeholder involvement in development of the ICT strategy


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- describe specific client business requirements in relation to proposed ICT solutions.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a site where ICT strategies and solutions may be developed
- detailed information relating to current needs and project requirements of the business
- outcomes of the business analysis process
- client expectations brief
- business risks and objectives
- a range of ICT business solutions.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT511 Match ICT needs with the strategic direction of the enterprise

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure information and communications technology (ICT) services meet current and future internal operational enterprise requirements.

It applies to individuals whose responsibilities may include maintaining and supporting critical infrastructure for objectives in small-to-medium sized organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate current business strategy | 1.1 Analyse current strategic plan of the organisation to understand the industry environment and current organisational goals<br>1.2 Compare information related to current operational practices and the strategic plan to determine possible ICT gaps and improvement opportunities<br>1.3 Report information regarding the effect of ICT |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | developments to an appropriate person |
| 2. Evaluate effect of changes | 2.1 Review information on current ICT systems supported by the organisation<br>2.2 Compare and document advantages and disadvantages of current and proposed ICT systems<br>2.3 Determine the objectives and implications of introducing changes<br>2.4 Document findings and forward to appropriate person for feedback |
| 3. Develop action plans | 3.1 Develop plans to implement proposed changes according to organisational policy and procedures<br>3.2 Document action plans, ensuring that standards, targets and implementation methods are detailed<br>3.3 Forward documentation to appropriate person for feedback and approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2 | • Reviews, analyses and evaluates complex online and hard copy documentation containing ICT specific terminology, diagrams and numerical information to determine ICT gaps and improvement opportunities |
| Writing | 1.3, 2.2, 2.4, 3.1, 3.2 | • Uses plain English, together with vocabulary, grammatical structures, terminology, diagrams, numerical information, formatting and structure relevant to the job role and organisation |
| Oral Communication | 1.3, 2.3, 3.1 | • Uses plain English, translating technical terminology when necessary, to communicate with a range of personnel and determine objectives, articulate ideas and requirements, and develop plans<br>• Elicits information using effective listening and questioning techniques |


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| | | |
|---|---|---|
| Numeracy | 1.1, 1.2, 2.2, 2.3, 3.1 | • Interprets numerical data and applies mathematical calculations to assess the financial implications of introducing changes |
| Navigate the world of work | 1.1, 3.1 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies organisational implications of new legislation or regulation<br>• Seeks to improve policies and procedures to better meet organisational goals |
| Interact with others | 1.3, 2.4, 3.3 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Collaborates with others sharing information to build strong work groups and avoid behaviours that are not conducive to a productive environment |
| Get the work done | 1.1-1.3, 2.2, 2.3, 3.1 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision making processes for complex and non-routine situations<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation and formal and analytical thinking<br>• Uses and investigates new digital technologies and applications to manage and manipulate data and communicate effectively with others in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT511 Match ICT needs with the strategic direction of the enterprise | ICAICT511A Match IT needs with the strategic direction of the enterprise | Updated to meet Standards for Training Packages.<br><br>Minor edits to title and to clarify intent of performance criteria | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT511 Match ICT needs with the strategic direction of the enterprise

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- access and analyse relevant information on changes to technology and resources
- analyse strategic plans to determine future technology needs
- monitor resource use and cost-efficiency and effectiveness of technology
- develop and document action plan detailing standards, targets, timelines and implementation methods.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify methods of analysis and planning approaches to technical problems and management requirements
- assess and document the hardware platform used by the organisation and network, and the subsequent security guidelines required
- explain current system functionality to forecast for planning
- identify and specify operating systems supported by the organisation to forecast for planning
- compare competing and complementary internal and external operating environments
- identify and assess technology and product directions for evaluating and forecasting vendor and technology trends.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a site where ICT needs and strategic directions of the enterprise may be coordinated
- detailed information relating to abusiness strategic plan
- information on a range of ICT business solutions.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT512 Plan process re-engineering strategies for business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to select a process to be re-engineered, to plan for its re-engineering, and to understand the strategic, organisational and change context in which it is to be re-engineered.

It applies to individuals working in senior positions in the knowledge management or systems development field who are required to evaluate existing organisational workflows and processes with a view to redesigning them to achieve a defined business outcome.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Select the process to be re-engineered | 1.1 Identify major processes that require re-engineering<br>1.2 Identify boundaries, stakeholders and strategic importance of each process<br>1.3 Prioritise each process according to its level of performance<br>1.4 Select a process to re-engineer and document the decision making process |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Identify the strategic context | 2.1 Determine purpose of the selected process and where it fits into the business strategy<br>2.2 Evaluate the scope of the process, including stakeholder and strategic impact<br>2.3 Identify potential risks<br>2.4 Define broad objectives of the new process<br>2.5 Model the new process, taking into account client expectations, cooperation across boundaries and process flow<br>2.6 Analyse changes to organisational structures, technical requirements, training needs, cultural and political impact and communication channels<br>2.7 Document new process and impact of changes |
| 3. Design the new process | 3.1 Develop key performance indicators and implementation responsibilities for the new process<br>3.2 Communicate information to appropriate person<br>3.3 Prepare a process re-engineering plan to document stages<br>3.4 Submit process re-engineering plan to appropriate person for sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1-2.3, 2.6 | • Identifies, analyses and evaluates complex online and hard copy documentation containing specific terminology, diagrams and numerical information |
| Writing | 1.4, 2.5, 2.7, 3.3 | • Uses plain English, appropriate grammatical structures and terminology, diagrams and flow charts; numerical information; and formatting and document structure relevant to the job role and organisation |
| Oral Communication | 1.1, 1.2, 1.4, 2.1, 2.3, 2.5, 3.2, 3.4 | • Articulates research and resource requirements clearly and directs discussions to elicit information and the views and opinions of others by using |


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| | | |
|---|---|---|
| | | effective listening and open questioning techniques<br>• Uses a range of verbal responses and makes comparisons that show an understanding of topics and concepts |
| Numeracy | 1.3, 1.4, 2.2, 2.3, 2.5-2.7 | • Interprets numerical information and applies mathematical calculations and financial functions to analyse financial information |
| Interact with others | 3.2, 3.4 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1-1.4, 2.1-2.6, 3.1 | • Uses a combination of formal and logical planning processes and an increasingly intuitive understanding of context to determine appropriate solutions<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT512 Plan process re-engineering strategies for business | ICAICT512A Plan process re-engineering strategies for business | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT512 Plan process re-engineering strategies for business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- document the re-engineering selection and decision making process
- prepare an analysis, documenting the impact of changes to the organisation
- plan the re-engineering of the process in a manner that supports the strategic, organisational and change context of the process to be re-engineered
- design the new process, including key performance indicators and implementation responsibilities
- prepare a process re-engineering plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and summarise copyright and intellectual property implications
- discuss and explore e-commerce and industry standards pertinent to business strategies
- describe the process required for organisational development and structure
- summarise the organisational strategy development process
- describe the stakeholder liaison and negotiation process.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- an organisational structure and culture


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- an organisational strategy
- stakeholder analysis
- e-business models
- a personal computer (PC)
- analysis software and modelling software currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT514 Identify and manage the implementation of current industry specific technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to demonstrate and constantly review work processes that ensure that the quality of the business process is maintained for the implementation of specific industry technologies at an identified industry standard.

It applies to individuals engaged in ongoing review and research in order to identify, manage and evaluate the implementation of industry technologies or techniques to improve aspects of the organisation's activities.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse and plan the implementation of industry specific technologies | 1.1 Identify technologies specific to an industry sector<br>1.2 Acquire industry specific technologies and analyse their relevance to organisational requirements<br>1.3 Plan the implementation of industry specific technologies |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | where appropriate for the benefit of the organisation |
| 2. Manage the application of industry specific technology to assist in solving specific organisational problems | 2.1 Manage the testing of industry specific technology<br>2.2 Manage the implementation of specific features and functions of industry specific technology to provide a suitable solution to an identified problem<br>2.3 Demonstrate depth of knowledge of enabling technologies to an accepted industry standard<br>2.4 Access and use sources of information relating to the industry specific technology |
| 3. Review, analyse and evaluate industry specific technology performance | 3.1 Analyse implementation of the industry specific technology for performance and usability<br>3.2 Review and evaluate the benefits to the organisation<br>3.3 Determine environmental considerations involved with using the technology<br>3.4 Seek feedback from users where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.4, 3.2-3.4 | • Identifies and interprets technical online and hard copy documentation containing complex terminology and diagrams to identify industry specific technologies that will benefit the organisation |
| Writing | 1.3, 3.1, 3.4 | • Uses vocabulary, grammatical structures and terminology and document structure relevant to the job role and organisation<br>• Uses plain English and appropriate questioning strategies, avoiding loaded or leading questions, when developing feedback gathering documentation |
| Oral Communication | 1.1-1.3, 2.1, 2.2, 2.4, 3.1-3.4 | • Uses clear, easy-to-understand language, translating industry specific terminology into plain English, together with effective listening and open, probing questioning techniques |


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| | | |
|---|---|---|
| Navigate the world of work | 3.3 | • Keeps up to date on changes to legislation or regulations relevant to own rights and responsibilities, and considers implications of these when planning work |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1, 3.2 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Actively identifies systems, devices and applications with potential to meet current and future needs |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT514 Identify and manage the implementation of current industry specific technologies | ICAICT514A Identify and manage the implementation of current industry specific technologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT514 Identify and manage the implementation of current industry specific technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and critically evaluate features and functions of identified industry specific technologies to an industry standard
- manage the implementation of new and emerging industry specific technologies
- review the performance of the industry specific technologies for the organisation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the trends and applications of current vendor products and technologies
- outline the various techniques for gathering information
- discuss the current directions of information and communications technology (ICT) and specifically of the major industry technology standards used in the specified area
- summarise the general features, capabilities and application of current industry hardware and software products.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a site where industry specific technologies may be used
- industry specific technologies currently used in industry
- documents detailing work health and safety (WHS) standards, environmental guidelines and organisational requirements.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT515 Verify client business requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to deal with clients at a senior level, to identify their business requirements and verify the accuracy of the information gathered.

It applies to individuals who are senior information and communications technology (ICT) personnel operating with a high degree of autonomy for managing activities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish business relationship | 1.1 Identify organisational structure, culture and politics in relation to support requirements<br>1.2 Identify organisational stakeholders<br>1.3 Develop business relationship with client across the appropriate number of organisational units<br>1.4 Schedule regular liaison to manage relationship |
| 2. Determine context of | 2.1 Work with client to define the business problem to be |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| business need or problem | investigated<br>2.2 Establish system boundaries and scope<br>2.3 Manage preparation of appropriate information gathering<br>2.4 Ensure that project objectives and outcomes are documented<br>2.5 Work with client to substantiate documentation |
| 3. Analyse new information | 3.1 Supervise information gathering from identified clients of the system<br>3.2 Analyse gathered client responses<br>3.3 Analyse new system requirements<br>3.4 Ensure that new system requirements and problems are documented |
| 4. Confirm system specifications | 4.1 Review documentation<br>4.2 Work with client to verify system specifications, updating documentation as required<br>4.3 Obtain final approval and sign-off from client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.3, 2.5, 3.2, 3.3, 4.1 | • Identifies, analyses and evaluates complex and technical online and hard copy documentation containing specific terminology, diagrams and numerical information to identify organisational requirements, analyse business problems and identify solutions |
| Writing | 1.4, 2.3-2.5, 3.4, 4.2 | • Uses plain English and appropriate questioning strategies, avoiding loaded or leading questions, when developing information gathering documentation<br>• Uses plain English, appropriate grammatical structures and terminology, diagrams and flow charts, numerical information, and formatting and document |


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| | | |
|---|---|---|
| | | structure relevant to the job role and organisation to record new system requirements and associated risks |
| Oral Communication | 1.1-1.3, 2.1, 2.2, 2.5, 3.1, 4.2, 4.3 | • Elicits the view and opinions of others and obtains information by listening and questioning<br>• Participates in a verbal exchange of ideas/solutions and uses detailed and clear language to clarify and present information according to requirements and audience<br>• Articulates requirements and strategies clearly, using appropriate tone, style, body language and reflective responses to build business relationships |
| Numeracy | 2.2-2.5, 3.3, 4.2 | • Interprets numerical information and applies mathematical calculations relating to time durations and budgetary information |
| Interact with others | 1.3, 4.3 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1, 1.2, 1.4, 2.2, 2.3, 3.2, 3.3 | • Uses a combination of formal and logical planning processes and an increasingly intuitive understanding of context to evaluate appropriate solutions<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT515 Verify client business requirements | ICAICT515A Verify client business requirements | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT515 Verify client business requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish business relationship through investigation of the organisation and interviews with client and staff
- determine and document business expectations and needs, including critical business requirements
- work with clients and staff to gather, analyse and confirm information contributions
- review and gain approval for system specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the process of communicating with the client in order to gather and report data
- provide an overview of the client business to enable informed information and communications technology (ICT) product selection
- describe the process used to identify products related to the business
- outline the role of stakeholders and the degree of stakeholder involvement.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- current business needs
- client expectations brief
- business objectives


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- systems, data gathering and appropriate software products.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT601 Develop ICT strategic and action plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create strategic and action plans in alignment with organisational information and communications technology (ICT) goals and strategies.

It applies to individuals who work as senior ICT staff and who are required to develop strategies and action plans for implementation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop and communicate mission and vision statement | 1.1 Develop a mission statement for the organisation that states the purpose, values and business activities<br>1.2 Develop a vision statement for the organisation that describes its future operation and success<br>1.3 Develop the mission and vision statements in active consultation with team members and management<br>1.4 Document mission and vision statements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Communicate mission and vision statement to stakeholders and other authorities in the organisation |
| 2. Examine organisational environment | 2.1 Assess the current internal situation of the organisation, taking into account its strengths and weaknesses<br>2.2 Assess the external environment of the organisation, taking into account opportunities and threats<br>2.3 Determine trends and developments impacting on the strategic direction of the organisation<br>2.4 Determine critical issues facing the organisation<br>2.5 Document strengths, weaknesses, opportunities, threats (SWOT) and critical issues facing the organisation in the strategic plan |
| 3. Set objectives and targets | 3.1 Use critical issues to develop objectives and targets for the organisation after active consultation with team members and management<br>3.2 Develop strategies that meet organisational objectives and reflect overall organisational mission and values<br>3.3 Ensure strategies are obtainable, realistic and able to meet basic mission critical parameters<br>3.4 Determine constraints associated with the strategies and objectives developed<br>3.5 Include strategies, objectives and constraints in strategic plan documentation |
| 4. Develop action plans | 4.1 Develop action plans for the strategies and objectives in consultation with team members and management<br>4.2 Check that action plans have clear, comprehensive and concise details<br>4.3 Check that action plans are adhered to<br>4.4 Include action plans in strategic plan documentation |
| 5. Review and implement strategic plan | 5.1 Review strategic plan with stakeholders and management<br>5.2 Incorporate changes and improvements as recommended<br>5.3 Implement action plans as set out in the strategic plan<br>5.4 Review and evaluate success of strategic plan after action plans have been implemented |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1-2.4, 3.4, 4.2, 5.1, 5.4 | • Identifies, analyses and evaluates complex text, diagrams, business models, industry trends, statistical information and financial information |
| Writing | 1.1-1.4, 2.5, 3.1, 3.2, 3.5, 4.1, 4.4, 5.2 | • Integrates information and ideas from a number of sources, utilising appropriate strategic planning tools, specialised and cohesive language and formal document structures |
| Oral Communication | 1.1-1.3, 1.5, 2.1-2.4, 3.1, 3.2, 3.4, 4.1, 4.3, 5.1, 5.3, 5.4 | • Elicits the view and opinions of others and obtains information by using effective listening and probing, open questioning techniques<br>• Participates in a verbal exchange of ideas/solutions and uses detailed and clear language to clarify and present information according to requirements and audience<br>• Articulates requirements and strategies clearly, using appropriate tone, style, body language and reflective responses |
| Numeracy | 2.1--2.5, 3.2-3.4, 4.1, 5.3 | • Uses a range of statistical, mathematical and financial calculations and functions to interpret numerical data relating to SWOT analysis and time and financial constraints |
| Navigate the world of work | 2.5, 3.2, 5.3 | • Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are being met |
| Get the work done | 1.1-1.3, 2.1- 2.5, 3.1-3.4, 4.1, 4.3, 5.3, 5.4 | • Recognises the critical importance of clarifying, focusing and aligning goals and expectations, and may use the process to build ownership of and broad commitment to achieving outcomes<br>• Identifies a range of factors that impact on a decision, including own values and principles, the needs, power, values, beliefs and assumptions of stakeholders<br>• May intuitively hone in on problem areas and identify a small set of possible and appropriate solutions<br>• Applies systematic thinking techniques as an |


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| | | |
|---|---|---|
| | | integral part of the creative process, recognising the need to challenge habitual perceptions, break patterns and make new connections in order to escape from habitual mindsets<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT601 Develop ICT strategic and action plans | ICAICT601A Develop IT strategic and action plans | Updated to meet Standards for Training Packages.<br><br>Minor edits to the title and to clarify intent of performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT601 Develop ICT strategic and action plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop mission and vision statements in consultation with team members and management
- conduct a strengths, weakness, opportunities and threats (SWOT) analysis
- develop strategic directions and action plans determined by the strategic alignment of information and communications technology (ICT) directions with organisational goals
- review strategic plan and incorporate changes and improvements
- implement action plans
- evaluate strategic plans following implementation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss analysis and planning approaches to technical problems and management requirements relating to network ICT security guidelines of the organisation
- explain how to conduct a SWOT analysis
- outline the organisation's approach to:
  - developing action plans
  - monitoring strategic directions
  - setting objectives and targets
  - selecting hardware platform
- outline technology and product directions
- discuss evaluation methods used when forecasting for planning:
  - current system functionality, particularly with regard to ICT trends and developments


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- internal and external operating environments
- operating systems supported by the organisation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- the organisation's strategic plan
- budget and time constraints
- business objectives
- business risks
- information on a range of ICT business solutions
- outcomes of the business analysis process.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT602 Develop contracts and manage contracted performance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to negotiate and document contractual arrangements between clients and vendors, and to monitor and manage performance against agreed contractual obligations.

It applies to individuals who work in senior information and communications technology (ICT) management roles who are required to contract both staff and suppliers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish contract | 1.1 Determine boundaries of the contract<br>1.2 Document contract details and provide a copy to the client and vendor for review<br>1.3 Obtain client and vendor feedback to clarify problems and misunderstandings<br>1.4 Facilitate negotiations to resolve problems and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | misunderstandings<br>1.5 Seek agreement from stakeholders |
| 2. Monitor contract | 2.1 Monitor performance against contractual obligations to ensure desired level of quality is maintained<br>2.2 Ascertain client satisfaction with contractual performance<br>2.3 Identify and take action to address unsatisfactory performance<br>2.4 Provide recommendations for contractual variations, if required<br>2.5 Forward recommendations to appropriate person for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.3 | • Identifies and analyses a variety of organisational documentation, vendor and client information, technical specifications and financial data |
| Writing | 1.2, 2.4 | • Integrates information and requirements from a number of sources using correct spelling and grammar, specialised and cohesive language, and formal contract documentation structures |
| Oral Communication | 1.1, 1.3-1.5, 2.1-2.5 | • Uses effective listening and probing, and open questioning techniques to elicit the views and opinions of others and obtain information and feedback<br>• Articulates requirements clearly in plain English and uses appropriate tone, style, body language and reflective responses to interact effectively, remedy issues and disagreements, and negotiate outcomes |
| Numeracy | 1.1-1.3, 2.1, 2.3, 2.4 | • Uses a range of mathematical and financial calculations to determine and monitor contractual milestones, costs and budgetary constraints |
| Interact with others | 1.2, 2.5 | • Actively identifies the requirements of important communication exchanges, selecting appropriate |


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|---|---|---|
| | | channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1, 1.4, 2.1, 2.3 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Uses systematic analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focussing attention on critical issues and variables and filtering out peripheral issues<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT602 Develop contracts and manage contracted performance | ICAICT602A Develop contracts and manage contracted performance | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT602 Develop contracts and manage contracted performance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- negotiate and formulate contracts
- access and analyse relevant information on resources and budgets
- analyse current and future contract requirements
- monitor resource use, cost efficiency and effectiveness against contractual obligations
- review objectives and performance measures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the analysis and planning approaches to technical problems or management requirements, taking into account:
  - organisational values
  - purpose in the context of formulating contracts
- outline methods for evaluating and forecasting vendor and technology trends
- discuss contracting requirements related to information and communications technology (ICT)
- describe methods of purchasing ICT equipment and services, such as negotiating extensive client support contracts
- outline industry standards in relation to service and product agreements.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- detailed information relating to business strategic plan
- budget constraints
- timeframe for the strategic plan
- business objectives
- information on a range of ICT business solutions
- outcomes of a business analysis process.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT603 Manage the use of appropriate development methodologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to nominate the most appropriate traditional or non-traditional systems development methodologies for use by a team.

It applies to individuals who work in senior information and communications technology (ICT) management roles and are required to manage development teams.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine and select appropriate development methodology for a given activity | 1.1 Determine and define subject activity<br>1.2 Define criteria for selection of development methodology<br>1.3 Review and evaluate with project leader a range of traditional and non-traditional system development methodologies<br>1.4 Select appropriate system development methodology to suit the activity |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Brief project team on selected methodology |
| 2. Direct the use of the selected development methodology | 2.1 Review the initial project plan to guide developmental processes<br>2.2 Review the identification of appropriate task types according to development methodology<br>2.3 Review the description and articulation of task types<br>2.4 Review the definition of appropriate control structures that need to be created during task type execution<br>2.5 Review the identification of resources to support methodology selection<br>2.6 Monitor the application of appropriate methodology to solve tasks<br>2.7 Monitor the project flow and effectiveness of use of methodology against project plan<br>2.8 Review the documented opportunities for improvement, lessons learned and recommendations for future projects |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.5, 2.8 | • Identifies, analyses and evaluates a range of online and hard copy organisational documentation and technical information containing complex, systems development specific terminology, syntax and diagrams and applies the information to the task |
| Writing | 1.1-1.3, 2.1-2.5 | • Uses correct spelling, grammar and plain English together with a range of systems development specific terminology and computer generated diagrams |
| Oral Communication | 1.1, 1.3-1.5, 2.1-2.8 | • Elicits and evaluates information using project related terminology and effective listening and questioning techniques<br>• Uses specific and complex systems development terminology to liaise with project leader, review methodology and monitor the project |


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|---|---|---|
| Interact with others | 1.3 | • Identifies relevant information and ideas from a range of messages and oral and written exchanges, paying some attention to the meanings attached to the choice of form, channel and wording |
| Get the work done | 1.1, 1.2, 1.4, 2.1-2.7 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Uses systematic analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT603 Manage the use of appropriate development methodologies | ICAICT603A Manage the use of appropriate development methodologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT603 Manage the use of appropriate development methodologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- manage a project team
- review a project plan
- supervise the application of a methodology to a project
- evaluate a range of development methodologies and their application to a project or scenario
- review documentation as required by the chosen methodology.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline and analyse the client business domain and organisational requirements
- discuss the life cycle maintenance of a live system, network or website
- describe the role of stakeholders and the degree of stakeholder involvement in the development process
- identify and discuss the technology requirements involved for a range of development methodologies
- discuss two or more current industry development methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:


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- design specifications and current development methodologies
- organisational standards for documentation and version control
- detailed user requirements document, including model and scope
- a project plan.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT604 Identify and implement business innovation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse traditional business processes to identify and implement business opportunities for innovation and reform.

It applies to individuals in senior information and communications technology (ICT) roles within organisations, in the areas of knowledge management and systems development, who are responsible for analysing, identifying and coordinating relevant ICT business solutions to meet given organisational goals.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Compare the business with competitor businesses | 1.1 Investigate information on business markets, customers and methods of doing business<br>1.2 Analyse and compare the current market for the business and the customer base with typical business markets and customers<br>1.3 Analyse and contrast current business relationships, business processes and methods of doing business with |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | e-facilitated businesses |
| 2. Identify business opportunities for innovation and reform | 2.1 Investigate innovation and reform of aspects of the business through business strategies<br>2.2 Assess opportunities for their compatibility with business goals and objectives, and conduct a cost-benefit analysis for each<br>2.3 Evaluate the degree of likely change and the ramifications for the business and its culture for each opportunity<br>2.4 Conduct a risk management analysis and formulate a plan for dealing with contingencies according to organisational requirements<br>2.5 Rank opportunities in terms of their viability and applicability to the organisation<br>2.6 Include opportunities for innovation in the organisation's business strategy and prioritise them for implementation |
| 3. Implement innovation | 3.1 Redesign aspects of the business in an innovative manner using online technologies according to the organisation's business strategy<br>3.2 Integrate innovation into the business and monitor to gauge usefulness and maximise implementation<br>3.3 Review business innovation in consultation with users and make recommendations for improvement or further innovation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Identifies, analyses and evaluates complex textual information to obtain information relevant to the organisation and the development of the innovative reforms |
| Writing | 3.3 | • Integrates information and ideas from a number of sources, utilising appropriate strategic planning and business innovation tools, specialised and cohesive language and formal document structures to meet the |


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|---|---|---|
| | | varied requirements of the organisation and the stakeholders |
| Oral Communication | 3.3 | • Elicits the views and opinions of others and obtains information by using effective listening and probing open questioning techniques<br>• Participates in a verbal exchange of ideas/solutions and uses detailed and clear language to clarify and present information according to requirements and audience<br>• Articulates requirements and strategies clearly, using appropriate tone, style, body language and reflective responses |
| Numeracy | 2.2 | • Uses a range of statistical, mathematical and financial calculations and functions to interpret numerical data relating to cost-benefit analysis and risk and time constraints, and to monitor implementation of the reform |
| Navigate the world of work | 2.4 | • Recognises and responds to both implicit and explicit protocols within familiar work contexts and appreciates the importance of identifying and responding to protocols in new situations |
| Get the work done | 1.1-1.3, 2.1-2.6, 3.1, 3.2 | • May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, identifying and addressing issues<br>• Uses analysis, lateral thinking, experience and knowledge to address complex problems<br>• Reflects on the ways in which variables impact on decision outcomes<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and enhance or reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT604 Identify and implement business innovation | ICAICT604A Identify and implement business innovation | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT604 Identify and implement business innovation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- define the organisation's strategic directions
- develop innovations to assist the business
- produce a cost-benefit analysis of suggested innovations
- develop an implementation plan for the innovations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the culture of the business versus traditional business models
- identify internal and external sources of information
- outline legal, ethical and security issues relating to business strategies
- outline records management principles
- identify relevant legislation from levels of government that effect business operation, especially regarding workplace health and safety (WHS) and environmental issues, equal opportunity, industrial relations and anti-discrimination
- outline the structure of the business.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a range of business documents covering vision, mission statements and strategic directions


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- a site where business opportunities for innovation may be implemented.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT605 Implement a knowledge management strategy

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement, monitor and review knowledge management strategies.

It applies to individuals who work in senior information and communications technology (ICT) roles in knowledge management and systems development teams.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Implement knowledge management system and procedures | 1.1 Foster a culture of sharing knowledge within the business through a system of formal and informal incentives and rewards<br>1.2 Implement policy and procedures for capturing knowledge within the organisation according to the business knowledge management strategy, and integrate this knowledge into existing business processes to change the enterprise processes<br>1.3 Model methods of contributing to the organisation's knowledge management system, and provide learning and development opportunities for staff to assist them to contribute |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and provide feedback<br>1.4 Provide coaching, mentoring and ongoing support to staff in accessing and using the organisation's knowledge management system according to the business knowledge management strategy<br>1.5 Manage protection and security of knowledge or information and levels of access according to organisational requirements |
| 2. Maintain business knowledge base | 2.1 Monitor input procedures to ensure that sources are tapped and knowledge is captured according to the business knowledge management strategy, and to ensure the effectiveness of accurate data capture<br>2.2 Collect and analyse data on access and use of the knowledge management system to determine the organisation's strategic use of knowledge<br>2.3 Implement contingency measures to address shortfalls in the knowledge management system and procedures, according to level of responsibility and authority |
| 3. Review knowledge management system and procedures | 3.1 Evaluate the knowledge management system and procedures to ensure they meet the needs of clients, organisational aims, objectives and standards<br>3.2 Periodically review the organisational knowledge content for accuracy and currency to ensure that it remains in line with organisational requirements<br>3.3 Identify improvements to the system and to the organisation's strategic use of knowledge in consultation with users, and prepare a cost-benefit analysis with recommendations |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2, 3.1, 3.2 | • Critically evaluates a wide variety of textual information to ensure current accuracy of knowledge |


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| | | bank |
| Writing | 1.3, 3.1, 3.3 | • Integrates information and ideas from a number of sources using clear, logical document structures, relevant terminology and correct grammatical structures |
| Oral Communication | 1.1–1.5, 2.1–2.3, 3.1–3.3 | • Elicits the view and opinions of others and obtains information by using effective listening and probing open questioning techniques<br>• Participates in a verbal exchange of ideas/solutions and uses detailed and clear language to clarify and present information according to requirements and audience<br>• Articulates requirements and strategies clearly, and obtains information by using the appropriate pitch and tone of voice, encouraging body language and reflective responses |
| Numeracy | 2.1, 2.2, 3.1, 3.3 | • Uses a range of statistical, mathematical and financial calculations and functions, and relevant software tools to interpret data, review knowledge bank efficiency and develop a cost-benefit analysis |
| Navigate the world of work | 1.2, 1.5 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and responding to workplace policies and procedures |
| Interact with others | 1.1, 1.4 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and taking leadership role on occasion |
| Get the work done | 1.3, 1.5, 2.1-2.3, 3.1, 3.2 | • May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, identifying and addressing issues<br>• Uses each experience to reflect on the ways in which variables impact on decision outcomes<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account<br>• Recognises critical importance of the ongoing exploration of new ideas to the viability and effectiveness of a work situation<br>• Considers strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and enhance or reduce risks<br>• May intuitively hone in on problem areas and |


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| | | |
|---|---|---|
| | | identify a small set of possible appropriate solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT605 Implement a knowledge management strategy | ICAICT605A Implement a knowledge management strategy | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT605 Implement a knowledge management strategy

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- recognise the need for a knowledge management system in a contemporary organisation
- develop and implement a knowledge management system
- manage culture change in the management of knowledge
- review and improve systems and procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the importance of knowledge management in a contemporary organisation
- discuss the difference between the business culture and the business model
- outline database design concepts for management knowledge
- identify and quantify internal and external sources of information
- discuss legal, ethical and security issues relating to knowledge management
- describe records management principles
- determine relevant legislation from levels of government that effect business operation, including:
  - workplace health and safety (WHS)
  - environmental issues
  - equal opportunity
  - industrial relations
  - anti-discrimination
- outline the structure of the business and its relationship to knowledge management.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- sample organisations and their structure, goals and knowledge requirements
- organisational business plans
- existing knowledge management strategies.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT606 Develop communities of practice

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify areas that would benefit from communities of practice (CoPs), and to develop such communities.

It applies to individuals who work in senior information and communications technology (ICT) management roles and are responsible for teams and their production.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify requirement for community of practice | 1.1 Map organisational knowledge<br>1.2 Identify existing informal communities of practice (CoPs)<br>1.3 Identify situations where staff will benefit from closer cooperation across organisational boundaries<br>1.4 Identify those in disparate areas that share work goals |
| 2. Devise spaces for involvement | 2.1 Enable electronic meeting spaces<br>2.2 Enable shared storage areas, both public and private |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Enable group mailing capability<br>2.4 Enable other appropriate technical facilitators |
| 3. Invite participation | 3.1 Publicise collaborative tools<br>3.2 Invite staff in areas identified above to group events, such as training and conferences<br>3.3 Allow new groups to coalesce spontaneously<br>3.4 Accept different levels of participation |
| 4. Assist evolution of community | 4.1 Facilitate regular contact within CoPs<br>4.2 Enable evolution of CoPs, including the disbanding of a CoP where its purpose has been achieved |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4 | • Identifies and reviews a wide variety of text sourced from organisational documentation, electronic meeting places and the organisational knowledge bank to determine relevant and key information |
| Writing | 1.1, 3.1, 3.2, 4.1, 4.2 | • Uses persuasive writing, correct spelling, appropriate grammatical structures and a broad range of vocabulary, including idioms, colloquialisms and technical terminology, and applies document structures suitable to the document type |
| Oral Communication | 1.1-1.4, 3.1, 3.2, 4.1, 4.2 | • Elicits the view and opinions of others and obtains information by using effective listening and probing open questioning techniques<br>• Uses the appropriate pitch and tone of voice, encouraging body language, reflective responses, plain English and a courteous manner when encouraging participation and facilitating CoPs |
| Interact with others | 3.2-3.4, 4.1 | • Fosters a collaborative culture within own sphere of influence, facilitating a sense of commitment and cohesion, and highlighting and using the strengths of those involved |


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| | | |
|---|---|---|
| Get the work done | 1.1-1.4, 2.1-2.4, 4.2 | • Takes responsibility for defining key aspects of own workload, balancing own needs and priorities with those of the work group<br>• Actively identifies, creates and utilises linkages to enhance knowledge sharing, idea creation, individual and collective engagement and work outcomes<br>• Actively identifies systems, devices and applications with potential to meet current and future needs |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT606 Develop communities of practice | ICAICT606A Develop communities of practice | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT606 Develop communities of practice

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and map appropriate areas for communities of practice (CoPs) for an organisation
- identify and manage the provision of enabling methodologies
- foster and encourage participation in CoP
- facilitate the development of CoP.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- define ‘communities of practice’ and describe their purpose in an organisation
- outline organisational structures, goals and knowledge, and how they apply to CoPs
- identify and compare communications enabling technologies
- discuss group dynamics and its impact on building CoPs
- describe techniques to promote, market and engage with CoPs and the enabling technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- an organisational structure, goals and knowledge
- a site where CoP may be developed.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT608 Interact with clients on a business level

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to interact with clients at a management level.

It applies to individuals working as management personnel in a range of information and communications technology (ICT) areas who are responsible for maintaining client relationships.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review client's business domain | 1.1 Research organisational service standards, values and culture to understand the organisational environment<br>1.2 Investigate and document the goods and services provided by the organisation<br>1.3 Review current service level agreements (SLAs) if appropriate |
| 2. Develop new business | 2.1 Research client service needs and preferred level of service |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| with client | 2.2 Research opportunities for new business with client<br>2.3 Develop draft proposals to cover these new initiatives |
| 3. Negotiate new business initiatives | 3.1 Conduct a session with the client to present the new opportunities<br>3.2 Present proposals to the client in a clear, concise and comprehensive manner<br>3.3 Present proposed cost and timeframes to the client<br>3.4 Negotiate terms with the client and record alterations if required<br>3.5 Clarify areas of uncertainty or disagreement<br>3.6 Document agreement negotiated with the client |
| 4. Monitor, adjust and implement procedures to maintain client focus | 4.1 Assess progress in achieving new client initiatives<br>4.2 Gather client feedback to improve the proposals<br>4.3 Adjust service provided to the client based on client feedback and in line with organisational guidelines<br>4.4 Document changes to new provisions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.2, 4.1, 4.2 | • Identifies, analyses and evaluates a range of complex information to identify relevant and key information |
| Writing | 2.3, 3.6, 4.4 | • Uses plain English, appropriate grammatical structures and specialised terminology, diagrams and flow charts, logical document structures and formatting relevant to the job role and organisation to record document proposals and agreements |
| Oral Communication | 1.1-1.3, 2.1, 2.2, 3.1-3.5, 4.1, 4.2 | • Uses open questioning and effective listening techniques to elicit information, clarify requirements and conduct effective negotiations<br>• Uses appropriate vocabulary, grammatical structure, |


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| | | |
|---|---|---|
| | | voice tone, body language and reflective responses to build business relationships and present proposals |
| Numeracy | 1.2, 1.3, 2.3, 3.3-3.5, 4.3, 4.4 | • Interprets numerical information and applies mathematical calculations and financial functions relating to time durations and projected costs |
| Navigate the world of work | 1.3, 4.3 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and responding to organisational procedures |
| Interact with others | 3.1, 3.2, 3.4 | • Invests considerable time and energy in building and maintaining effective working relationships within and beyond immediate work context, recognising and intuitively responding to the subtle and complex mix of factors at play in every interaction |
| Get the work done | 1.1, 1.2, 2.1-2.3, 4.1 | • Takes responsibility for defining key aspects of own workload, balancing own needs and priorities with new opportunities<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables, consider possible implications of different courses of action and determine the best course of action<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Demonstrates a sophisticated understanding of expectations, social protocols and online etiquette, intuitively selecting the appropriate channel, content and tone for diverse purposes and audiences |

# New Topic (129)

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT608 Interact with clients on a business level | ICAICT608A Interact with clients on a business level | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT608 Interact with clients on a business level

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- assemble a proposal for a new business initiative
- develop a strong awareness of the clients business
- present and negotiate a proposal with the client
- formulate and implement new business
- monitor and maintain client relationship and requirements of service.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss business practices relevant to understanding client needs, including:
  - change management
  - information gathering techniques
  - planning process, including development of information and communications technology (ICT) business solutions
  - preparation of reports
- identify current industry accepted hardware and software products relevant to client services and support, including:
  - general features and capabilities
  - vendor product directions
- identify and interpret legal principles of commercial contracts and service level agreements (SLAs)
- interpret organisational policies, plans and procedures, including contracting
- summarise the concepts of negotiation and the process for building business relationships.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- organisational policies, procedures and SLAs for the ICT industry
- contexts for negotiating agreements and contracts
- current ICT hardware and software products.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT609 Lead the evaluation and implementation of current industry specific technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to lead the identification, management and implementation of specific industry technologies to meet identified industry standards.

It applies to individuals who work in senior information and communications technology (ICT) leadership roles and are engaged in ongoing review and research to improve aspects of the organisation's activities.

Check the Implementation Guide Companion Volume for details about licensing, legislative or certification requirements.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Lead the implementation of industry specific technologies | 1.1 Identify technologies specific to an industry sector<br>1.2 Determine relevance of industry specific technologies to organisational requirements<br>1.3 Plan implementation of industry specific technologies where appropriate, for the benefit of the organisation |
| 2. Direct the application | 2.1 Lead management of testing of industry specific technology |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| of industry specific technologies to assist in solving specific organisational problems | 2.2 Direct implementation of specific features and functions of industry specific technologies to provide a suitable solution to an identified problem<br>2.3 Demonstrate depth of knowledge of enabling technologies to an accepted industry standard<br>2.4 Access and use sources of information relating to industry specific technologies |
| 3. Lead the review, analysis and evaluation of the industry specific technology performance | 3.1 Lead analysis of the implementation of the industry specific technologies for performance and usability<br>3.2 Analyse, review and evaluate the benefits to the organisation<br>3.3 Determine environmental considerations involved with using the technology<br>3.4 Seek feedback from users where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.3, 2.4, 3.1-3.4 | • Identifies and interprets technical online and hard copy documentation that will enable the organisation |
| Writing | 1.3, 3.2, 3.4 | • Uses vocabulary, grammatical structures, specific terminology and document structure relevant to the job role and organisation<br>• Uses plain English and appropriate questioning strategies, avoiding loaded or leading questions, when developing feedback gathering documentation |
| Oral Communication | 1.1-1.3, 2.1-2.4, 3.1-3.4 | • Uses clear, easy-to-understand language together with effective listening and open questioning techniques to elicit information |
| Navigate the world of work | 3.3 | • Appreciates the implications of legal and regulatory responsibilities related to own work, with specific reference to environmental considerations |
| Get the work | 1.1-1.3, 2.1- | • Develops plans to manage relatively complex non-routine tasks with an awareness of how they may |


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| | | |
|---|---|---|
| done | 2.3, 3.1, 3.2 | contribute to longer term strategic goals<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology and when seeking to understand the potential of new technology<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT609 Lead the evaluation and implementation of current industry specific technologies | ICAICT609A Lead the evaluation and implementation of current industry specific technologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT609 Lead the evaluation and implementation of current industry specific technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine new and emerging technologies suitable for organisational requirements
- lead the implementation of new and emerging industry specific technologies
- analyse, and critically evaluate the industry specific technology and its application to the organisation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse and appraise current technology trends and directions in the information and communications technology (ICT) sector
- specify the major industry standards used for the new technologies
- evaluate vendor products and the direction in which they are trending
- summarise information gathering techniques
- appraise the general features, capabilities and application of current industry hardware and software products.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a site where industry specific technologies may be used
- industry specific technologies currently used in industry


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- documents detailing workplace health and safety (WHS) standards, environmental guidelines and organisational requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT610 Manage copyright, ethics and privacy in an ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage the issues of copyright and professional and ethical conduct in a team, as well as to ensure that personal information of stakeholders is handled in a confidential and professional manner.

It applies to individuals who operate at a senior level with a high degree of autonomy in managing policies and system security.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage adherence to copyright regulations | 1.1 Review current Australian copyright law, and in particular its relationship to information and communications technology (ICT)<br>1.2 Ensure that team members are aware of Australian copyright law and how it affects their work<br>1.3 Institute measures to ensure that copyright is not breached |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Institute regular reviews to ensure organisational copyright requirements are up to date and team members are adhering to these requirements<br>1.5 Distribute updated versions if required |
| 2. Manage ethical behaviour | 2.1 Review appropriate code of ethics, both organisational and ICT specific<br>2.2 Acquaint team members with ethical requirements<br>2.3 Institute regular reviews of team members' ethical work practices and feedback to ensure correct application of the code<br>2.4 Ensure that stakeholders are aware of ethics code, and adjust appropriately following stakeholder feedback<br>2.5 Institute regular reviews of stakeholder understanding and application of code of ethics<br>2.6 Establish a review and grievance procedure to enable confidential reporting of ethical issues<br>2.7 Institute regular reviews of code of ethics, updating and distributing as required |
| 3. Manage privacy | 3.1 Institute a regular review of the relevance of legislation and standards to organisational outcomes, the organisation's privacy policy and procedures, and the work practices of team members with regard to these requirements<br>3.2 Determine and ensure the integrity, confidentiality, security and availability of information as required by the organisational policy<br>3.3 Ensure continued confidentiality and proprietary rights of stakeholders' interests<br>3.4 Contribute to the creation or updating of the organisation's privacy policy and procedures to align with privacy legislation<br>3.5 Distribute new or revised policy and procedures to stakeholders<br>3.6 Implement new work procedures and collect feedback from stakeholders |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.1, 3.2 | • Identifies, analyses and evaluates complex text to determine legislative requirements and organisational standards, and applies the information |
| Writing | 1.2-1.4, 2.3- 2.7, 3.1, 3.4 | • Integrates information and ideas from a number of sources, utilising appropriate support materials, specialised and cohesive language and a range of writing styles and document structures |
| Oral Communication | 1.2-1.4, 2.2-2.7, 3.1-3.4 | • Articulates ideas and requirements clearly, based on techniques appropriate to audience and environment<br>• Participates in a verbal exchange of ideas and elicits the view and opinions of others by using effective listening and open questioning techniques |
| Navigate the world of work | 1.1, 1.3, 1.4, 2.1, 2.6, 3.1, 3.2, 3.4 | • Takes full responsibility for identifying and considering relevant legal and regulatory obligations when managing copyright, ethics and privacy in an ICT environment<br>• Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements in order to implement and manage change |
| Interact with others | 1.5, 3.5 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience, and monitoring impact |
| Get the work done | 1.1, 1.4, 3.1-3.3 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Reflects on the application of key principles in a particular context, the appropriateness and effectiveness of different sources of information and planning processes for that context, and the potential implications for future situations<br>• Recognises broader positive and negative implications of new technologies, and acknowledges the vital importance of system security and storage management |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT610 Manage copyright, ethics and privacy in an ICT environment | ICAICT610A Manage copyright, ethics and privacy in an IT environment | Updated to meet Standards for Training Packages.<br><br>Minor edit to title and to clarify intent of performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT610 Manage copyright, ethics and privacy in an ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse legislation and standards related to copyright, professional conduct and privacy in the information and communications technology (ICT) industry
- contribute to the review and development of code of ethics, and monitor the workplace to ensure code of ethics is appropriate and being applied
- contribute to the review and development of a privacy policy, and monitor the workplace to ensure the policy is appropriate and being applied
- ensure the adherence to copyright, ethics and privacy in a team.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the Australian Computer Society Code of Ethics
- identify and explain federal and state or territory legislation and policy relevant to an ICT environment relating to:
  - access and equity
  - copyright and intellectual property
  - workplace health and safety (WHS)
  - privacy
- describe the processes and procedures by which an organisation communicates its policies and procedures
- outline organisational requirements for customer service
- summarise typical ICT system security systems and procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry and include access to:

- relevant organisational policies
- legislation and standards documentation
- industry codes of practice.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT801 Lead research into identifying new marketplace opportunities

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to lead the research, evaluation and recommendation of new organisational initiatives, based on perceived marketplace opportunities.

It applies to individuals who work as strategic business analysts in medium to large organisations in senior roles, who lead new business initiatives and transformation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Direct the research into the organisation's business domain | 1.1 Research the sectors in the relevant industry for trends that may yield viable business opportunities<br>1.2 Research business initiatives undertaken by competitor organisations, to address the same or similar opportunities, and analyse the resources required to undertake such initiatives or project opportunities<br>1.3 Identify the strategies for realising identified business |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | initiatives, including sub-contracting of suitable elements, where applicable<br>1.4 Research the legal, environmental and social implications of the identified initiatives |
| 2. Evaluate the new business initiatives | 2.1 Initiate, and oversee, the market research for potentially viable, identified business opportunities<br>2.2 Gauge the likely impacts of candidate initiatives on the business enterprise, including specific legal, financial and transformational implications<br>2.3 Critically evaluate the delivery strategies for anticipated products, or services, stemming from candidate initiatives |
| 3. Explore the feasibility of the new initiatives | 3.1 Formulate the selection criteria, based on the strategic business objectives<br>3.2 Facilitate a feasibility study, including a cost benefit analysis<br>3.3 Select the most feasible option against the selection criteria<br>3.4 Recommend the preferred initiative |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.1, 3.3 | • Identifies, analyses, and critically evaluates complex textual information, to identify industry trends and business initiatives |
| Writing | 2.1, 3.1, 3.4 | • Integrates information and ideas from a number of sources, utilising the appropriate analysis tools, diagrams, specialised and cohesive language, and formal document structures, to develop criteria and reports |
| Oral Communication | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.2, 3.4 | • Elicits the view and opinions of others, and obtains information, by using effective listening and open questioning techniques<br>• Participates in a verbal exchange of ideas/solutions, and uses detailed and clear |


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| | | |
|---|---|---|
| | | language, to clarify and present information, and to facilitate a feasibility study<br>• Uses the appropriate tone, style, body language and reflective responses, when clarifying information to present recommendations |
| Numeracy | 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3 | • Uses a range of statistical and financial calculations and functions, the appropriate software tools, and correct document structure, to analyse market research results and to conduct a feasibility study, and a cost benefit analysis |
| Navigate the world of work | 1.4, 2.2 | • Understands own legal rights and responsibilities, and extends the understanding of legal implications across work contexts |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.3, 3.1, 3.2, 3.3 | • Recognises the critical importance of clarifying, focusing and aligning goals, and expectations, and uses the process to build ownership of, and broad commitment to, achieving outcomes<br>• Takes responsibility for high-impact decisions in complex situations, involving many variables and constraints<br>• Keeps abreast of new ideas and possibilities beyond own context, borrowing, adapting, combining, and redesigning ideas, for own purposes, or using as a provocation to rethink current approaches |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT801 Lead research into identifying new marketplace opportunities | ICAICT701A Lead research into identifying new marketplace opportunities | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to Performance Criteria to meet AQF requirements | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT801 Lead research into identifying new marketplace opportunities

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- conduct research into the trends for a specified industry sector, and identify potential business opportunities
- undertake market research and analysis, and report on the viability and related implications, of a selected business opportunity
- develop and present a feasibility report, including a cost benefit analysis that justifies the recommendations for a proposed new business initiative.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- formulate various analysis methods and tools, including:
  - affinity diagrams
  - competition matrix
  - decision trees
  - mind maps
  - risk assessment
  - strengths, weaknesses, opportunities and threats (SWOT) analysis
  - value chain
- review and outline, contract and procurement methods
- summarise possible social implications, both internal and external, to the organisation as a result of the introduction of new market opportunities
- research government and non-government governing bodies in the relevant industry


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- review legal, ethical, and security issues relating to the research of competitive business opportunities, including the laws related to patents and copyright
- outline the organisational structure, policies and procedures
- review the relevant government legislation that affects business operation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- appropriate resources, to allow research to be conducted into industry trends (this may include access to commercial research house libraries via a memorandum of understanding or other arrangements)
- the opportunity to conduct meaningful market research on potential business opportunities
- simulated, or real, executive-level management teams for the presentation of proposals and feedback.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT802 Direct ICT services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to direct the strategic planning, risk management, and security of emerging, and converging, information and communications technology (ICT) services, internal and external, of medium to large organisations.

It applies to individuals in senior management roles who lead the management of business process to support organisational strategic goals of organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Direct the strategic planning for ICT resources | 1.1 Critically analyse the organisational environment<br>1.2 Ensure compliance with legislative and social requirements<br>1.3 Establish priorities, based on organisational needs<br>1.4 Establish the ICT infrastructure<br>1.5 Lead the development and implementation of a strategic plan for ICT resourcing |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Lead the risk management of ICT resources and processes | 2.1 Lead the development of a strategy for risk assessment<br>2.2 Ensure that the risk assessment complies with organisational policy<br>2.3 Ensure that risk mitigation is based on identified risks |
| 3. Direct the quality assurance processes for ICT services | 3.1 Lead the development of a quality assurance strategic plan<br>3.2 Monitor the quality processes<br>3.3 Oversee the implementation of quality assurance strategies<br>3.4 Ensure that continuous improvement is undertaken |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 1.5, 2.2, 3.2 | • Identifies, analyses and evaluates complex information from a range of sources, to obtain the information relevant to ICT strategic planning<br>• Interprets complex ideas, concepts and unfamiliar information |
| Writing | 1.3, 1.4, 1.5, 2.1, 3.1 | • Integrates information and ideas from a number of sources, utilising the appropriate modelling tools, specialised and cohesive language, and formal document structures, to meet the requirements of the audience and the task |
| Oral Communication | 1.1-1.5, 2.1-2.3, 3.1-3.4 | • Uses effective listening and probing, open questioning techniques to elicit the views and opinions of others, and to obtain information<br>• Participates in a verbal exchange of ideas and solutions, and uses detailed and clear language to clarify and present information, according to the requirements and the audience<br>• Articulates requirements and strategies clearly, using the appropriate pitch, tone, body language and reflective responses |
| Numeracy | 1.1, 1.5, 2.1, 2.2, | • Uses a range of statistical, mathematical and financial calculations and functions, and relevant |


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| | | |
|---|---|---|
| | 2.3, 3.1, 3.2, 3.3 | software tools, to interpret data relating to the development of the strategic plan, and to develop cost benefit analyses, and operational budgets |
| Navigate the world of work | 1.2, 2.2 | • Monitors adherence to legal and regulatory rights, and responsibilities, in order to direct strategic planning<br>• Recognises that workplace protocols that must be respected, and maintained, during risk management |
| Get the work done | 1.1, 1.3, 1.4, 1.5, 2.1, 2.3, 3.1 | • Develops plans for complex, high-impact activities with strategic implications<br>• May use formal decision-making processes as scaffolding for thinking, moving iteratively between phases as required<br>• May use formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions<br>• Explores, and incubates, ideas that have the potential to lead to radical departures from the current situation<br>• Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and uses these to troubleshoot, and understand, the uses of potential and new technology |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT802 Direct ICT services | ICAICT702A Direct ICT services | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to the Elements and Performance Criteria to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT802 Direct ICT services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- lead the development of a strategy to align information and communications technology (ICT) services, with organisational goals
- lead and monitor a risk analysis, including security for ICT assets
- implement procedures that identify where risk occurs, and what measures need to be taken
- produce contingency plans for business continuity
- establish warning systems, and an ongoing process, that includes regular or programmed reviews of the risk profile
- lead the development of a strategy and the implementation of a quality assurance process.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the security products, and organisational security policies, that affect ICT services
- research and then outline, the standards that relate to risk management principles and guidelines
- discuss business continuity issues for the organisation
- examine the organisation’s industry and current functionality, including the existing data and information systems
- review and describe, the organisation’s internal and external dependencies and interdependencies
- describe the organisational policies and procedures, including the risk-management strategy
- review and analyse, past and current internal, external and industry disruptions


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- outline the relevant legislation and regulations that impact on business continuity including:
  - workplace health and safety (WHS)
  - environment
  - duty of care
  - contracts
  - business and company law
  - freedom of information
  - industrial relations
  - privacy and confidentiality
  - due diligence
  - records management.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- relevant strategic level enterprise documentation, including:
  - planning
  - financial
  - ICT infrastructure
- codes of practice, legislation and regulations
- organisational policies and procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT803 Endorse business plan components for a new initiative

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to endorse a business plan for a new initiative, including the marketing, operations, organisational and financial plans within a medium to large organisation.

It applies to individuals who work in high-level management positions and lead the analysis, implementation and management of emerging, and converging, information and communications technology (ICT), as they are integrated into the business process to support the organisational strategic goals of medium to large organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Endorse a marketing plan for ICT business | 1.1 Ensure that internal and external environmental issues are addressed<br>1.2 Critically review the feasibility of target market projections<br>1.3 Endorse the selection of advertising and promotional |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | strategies |
| 2. Endorse the operation plan | 2.1 Review and verify, the scope of the business operation plan<br>2.2 Ensure that the business plan complies with business needs<br>2.3 Endorse the criteria for quality processes against the organisational standards |
| 3. Endorse the organisational plan | 3.1 Critically analyse and review the organisation's structure<br>3.2 Ensure that the organisational structure meets the organisation's strategic plans and directions |
| 4. Endorse the financial plan | 4.1 Endorse the financial strategy for the new initiative<br>4.2 Evaluate the expected cash-flow projections<br>4.3 Critically analyse and evaluate the effects of financial decisions on the ability of the organisation to meet planned outcomes<br>4.4 Ensure financial risk-management procedures are followed according to organisational requirements<br>4.5 Ensure early detection and remedial action plans, for deviations in budget objectives and projections |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 4.1, 4.2, 4.3, 4.4 | • Identifies, critically analyses and evaluates complex textual information, to evaluate the effectiveness of business plans |
| Writing | 1.3, 2.3, 3.2, 4.1, 4.3, 4.4, 4.5 | • Selects the document structure, language, grammar and terminology, to suit the specific subject matter and audience when evaluating, providing feedback, and endorsing business plans |
| Oral Communication | 1.1-1.3, 2.1-2.3, 3.1-3.2, 4.1-4.5 | • Obtains information by using effective listening and probing, open questioning techniques<br>• Uses grammatical structures, specialised language, and the appropriate tone, pitch and |


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| | | |
|---|---|---|
| | | body language to achieve precise meaning, when articulating requirements and providing feedback |
| Numeracy | 1.2, 2.1, 2.2, 3.2, 4.1, 4.2, 4.3, 4.4, 4.5 | • Uses a range of statistical, mathematical and financial calculations, formulae and functions, together with appropriate software tools, to interpret numerical data relating to the market, operational and financial plans, and risk analysis |
| Navigate the world of work | 3.2, 4.4 | • Takes responsibility to respond to explicit and implicit conventions within familiar work contexts, and appreciates the importance of identifying, and responding to, protocols in new situations |
| Get the work done | 1.1, 2.1, 2.2, 3.1, 4.3, 4.4, 4.5 | • Recognises the critical importance of clarifying, focusing and aligning goals, and expectations, and uses the process to build ownership of, and broad commitment to, achieving outcomes<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• May use formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions<br>• Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and endorses new technologies |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT803 Endorse business plan components for a new initiative | ICAICT703A Endorse business plan components for a new initiative | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to Elements and Performance Criteria to meet AQF requirements | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT803 Endorse business plan components for a new initiative

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- verify the strategy aligning information and communications technology (ICT) services with organisational goals
- direct a critical risk analysis, including security, for ICT assets
- verify that the risk assessment procedures are implemented
- verify that the contingency plans for business continuity are established
- evaluate the warning systems, and direct an ongoing process that includes regular or programmed reviews of the risk profile
- verify that security products are being utilised
- verify organisational security policy is being implemented
- direct the development of a strategy to ensure that quality expectations are being met
- endorse the main components of the business plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- research and summarise, risk management principles and guidelines
- review business continuity issues for the organisation
- explore the organisation’s industry and current functionality, including the existing data and information systems
- describe the organisation's internal and external dependencies, and interdependencies
- review and summarise the organisational policies and procedures, including the risk-management strategy
- discuss past and current internal, external and industry disruptions


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- outline the relevant legislation and regulations that impact on business continuity, including:
  - workplace health and safety (WHS)
  - environment
  - duty of care
  - contracts
  - business and company law
  - freedom of information
  - industrial relations
  - privacy and confidentiality
  - due diligence
  - records management.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- relevant strategic-level enterprise documentation, including:
  - planning
  - financial
  - ICT infrastructure documentation
- legislative policies.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT804 Direct ICT in a supply chain

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to direct the effective use of information and communications technology (ICT), in support of critical supply chain processes.

It applies to individuals who work in high-level management positions and lead the analysis, implementation and management of emerging, and converging, ICTs as they are integrated into the business process to support the organisational strategic goals of medium to large organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the current or proposed supply chain infrastructure | 1.1 Critically evaluate the key principles of supply chain management<br>1.2 Identify the supply chain processes in the organisation, from operational and business perspectives<br>1.3 Identify and review, management and operational links to external organisations<br>1.4 Identify current supply chains, network processes, service |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and performance objectives |
| 2. Direct ICT strategy to support supply chain processes | 2.1 Develop a strategy to align ICT technical resources with the identified supply chain processes<br>2.2 Build a communication model to improve the integration, and sharing of, critical business information between decision-makers and the operations and technical divisions<br>2.3 Identify the key performance indicators that will track progress against the strategic company objectives |
| 3. Lead the risk management of supply chain ICT support services | 3.1 Lead the development of a strategy for the risk assessment of internal, and external, supply chain processes<br>3.2 Assess the risk assessment strategy, to ensure that it complies with organisational policy<br>3.3 Mitigate identified risks |
| 4. Direct the quality assurance processes for supply chain ICT support services | 4.1 Implement strategies to monitor the performance levels of supply chain ICT support services<br>4.2 Ensure the continuous improvement of supply chain ICT support services |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.3, 3.2 | • Identifies, analyses and evaluates complex textual information relevant to the job role |
| Writing | 2.1, 2.2, 2.3, 3.1, 4.1, 4.2 | • Selects the document structure, language, grammar and terminology to suit the specific subject matter, and audience, when developing strategic plans, a supply chain model, and a communication model |
| Oral Communication | 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2 | • Obtains information by using effective listening and probing, and open questioning technique<br>• Uses grammatical structures, specialised language, and the appropriate tone, pitch and body language to achieve precise meaning, when articulating requirements and providing feedback |


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| | | |
|---|---|---|
| Numeracy | 2.1, 2.3, 3.1, 3.2, 4.1, 4.2 | • Uses a range of statistical, mathematical and financial calculations, formulae and functions, together with appropriate software tools, to interpret numerical data relating to performance objectives, key performance indicators, risk assessment and continuous improvement |
| Navigate the world of work | 3.2 | • Recognises and responds to organisational policies and protocols within the workplace |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.3, 4.2 | • Considers the strategic and operational potential of digital technology to achieve work goals, enhance work processes, create opportunities, and reduce risks<br>• Draws on a broad understanding of the context, and uses a combination of analysis and intuition to decide whether an idea is worth developing, and implementing<br>• Uses a nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focusing attention on critical issues and variables, and filtering out any peripheral issues<br>• Develops plans for complex high-impact activities with strategic implications |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT804 Direct ICT in a supply chain | ICAICT704A Direct ICT in a supply chain | Updated to meet Standards for Training Packages.<br><br>Recoded to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT804 Direct ICT in a supply chain

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop strategic directions for supply chain management in alignment with the organisational goals
- develop a strategy and key performance indicators for supply chain processes
- lead the development of a risk analysis strategy for a supply chain
- ensure that procedures identifying where risk occurs, and the measures needed to mitigate such risk, are developed and implemented
- ensure that a continuous improvement plan, for the information and communications technology (ICT) support of supply chain processes, is developed and implemented.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the typical supply chain models, and describe their management and business process integration
- discuss business continuity issues for the organisation
- describe the impact on the supply chain of the organisation’s industry and current functionality, including the existing data and information systems
- summarise the organisation's internal and external dependencies, and interdependencies
- review and outline the organisational policies and procedures, including the risk-management strategy
- describe past and current, internal, external and industry disruptions that may impact on the supply chain
- outline the relevant legislation and regulations that impact on business continuity including:


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- workplace health and safety (WHS)
- environment
- duty of care
- contracts
- business and company law
- freedom of information
- industrial relations
- privacy and confidentiality
- due diligence
- records management.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- relevant strategic-level enterprise, including:
  - planning
  - financial
  - ICT infrastructure
- codes of practice, legislation and regulations
- organisational policies and procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT805 Direct ICT procurement

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to direct information and communications technology (ICT) procurement for a medium to large organisation.

It applies to individuals who work in high-level management positions and lead the analysis, implementation and management of emerging, and converging, ICTs as they are integrated into the business process to support the organisational strategic goals of medium to large organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate the procurement processes of the organisation | 1.1 Research existing ICT procurement processes in the organisation<br>1.2 Establish the evaluation criteria for procurement processes<br>1.3 Critically evaluate the procurement processes against the criteria |
| 2. Direct the strategic | 2.1 Establish the priorities based on the organisational need |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| planning to support ICT procurement | 2.2 Lead the development of a strategy to align ICT procurement with the organisational goals and objectives<br>2.3 Implement the ICT procurement strategic plan<br>2.4 Develop the procurement policy, including vendor selection based on the strategic plan |
| 3. Lead the risk management of ICT procurement | 3.1 Lead the development of a strategy for the risk assessment of ICT procurement activities<br>3.2 Ensure that ICT procurement complies with the organisational policy<br>3.3 Ensure that risk mitigation is carried out on identified risks<br>3.4 Ensure the continuous improvement of ICT procurement processes |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.1, 2.2, 2.4, 3.1, 3.2, 3.3, 3.4 | • Researches and critically analyses, and evaluates, complex textual information relevant to the job role |
| Writing | 1.2, 2.1, 2.2, 2.4, 3.1, 3.4 | • Selects the document structure, language, grammar and terminology to suit the specific subject matter and audience, when developing cost benefit analyses, strategic plans and policies |
| Oral Communication | 1.1-1.3, 2.1-2.4, 3.1-3.4 | • Uses effective listening and probing, open questioning techniques, to elicit the views and opinions of others, and to obtain information<br>• Participates in a verbal exchange of ideas and solutions, and uses detailed and clear language, to clarify and present information, according to the requirements and the audience<br>• Articulates the requirements and strategies clearly, using the appropriate pitch, tone, body language, and reflective responses |
| Numeracy | 1.1, 1.2, 2.1, 2.2, | • Uses a range of statistical, mathematical and |


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| | | |
|---|---|---|
| | 2.3, 2.4, 3.1 | financial calculations, formulae and functions, together with the appropriate software tools, to interpret numerical and financial data relating to cost benefit analyses, evaluation criteria, key performance indicators, risk assessment and continuous improvement |
| Navigate the world of work | 2.2, 3.2 | • Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Develops and implements strategies that ensure that the organisational policies, procedures, and regulatory requirements are being met<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements, to implement and manage change |
| Interact with Others | 2.2, 3.1 | • Selects, implements and manipulates the communications systems, processes and practices for maximum impact<br>• Recognises the potential for conflict and, working with others, seeks to develop the organisational processes to deal with conflict<br>• Understands diversity, and seeks to integrate diversity into the work context for managing change, making decisions and achieving shared outcomes |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.3, 3.1, 3.4 | • Considers the strategic and operational potential of digital technology in order to achieve work goals, enhance work processes, create opportunities and reduce risks<br>• Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Identifies the key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision-making strategies, where appropriate<br>• Addresses complex problems involving multiple variables, using formal analytical, and lateral thinking techniques, and experience and knowledge, in order to focus |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTICT805 Direct ICT procurement | ICAICT705A Direct ICT procurement | Updated to meet Standards for Training Packages.<br><br>Recoded and minor edits to Performance Criteria to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT805 Direct ICT procurement

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- lead the development of a strategy to align information and communications technology (ICT) procurement, with organisational goals and objectives
- critically evaluate the procurement process and establish priorities for the organisation
- direct the risk analysis of ICT procurement activities
- lead the development of a strategy for risk assessment, and ensure that the measures required to mitigate the risk are applied
- ensure that warning systems, and an ongoing process that reviews the risk profile, are established
- lead the development of a strategy for the implementation of appropriate processes and procedures, that ensure that quality expectations are met.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- research and specify risk management principles and guidelines
- review business continuity issues for the organisation
- summarise the organisation’s industry and current functionality, including the existing data and information systems
- review the organisation's internal and external dependencies, and interdependencies
- identify and review the organisational policies and procedures, including the risk management strategy
- review and analyse past and current, internal, external and industry disruptions
- outline the relevant legislation and regulations that impact on business continuity including:


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  - workplace health and safety (WHS)
  - environment
  - duty of care
  - contracts
  - business and company law
  - freedom of information
  - industrial relations
  - privacy and confidentiality
  - due diligence
  - records management
- summarise the key principles of procurement.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- relevant strategic-level enterprise, including:
  - planning
  - financial
  - ICT infrastructure
- codes of practice, legislation and regulations
- organisational policies and procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT806 Direct outsourced ICT services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop strategic plans, and change-management strategies, for outsourced information and communications technology (ICT) services. It includes developing, tracking and managing service level agreements (SLAs), and ensuring continuous improvement.

It applies to individuals who work in high-level management positions and lead the analysis, implementation and management of emerging, and converging, ICTs as they are integrated into the business process to support the organisational strategic goals of medium to large organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Direct the strategic planning for outsourced ICT services | 1.1 Identify the ICT services to be outsourced<br>1.2 Establish the criteria for the outsourcing model<br>1.3 Critically analyse the impact on the current organisational environment<br>1.4 Select an appropriate business model for outsourcing, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | against the identified criteria<br>1.5 Research the appropriate ICT service providers (vendor evaluation), against the identified criteria<br>1.6 Develop the strategic plan for outsourced ICT services |
| 2. Lead the risk management of outsourced ICT services | 2.1 Specify the relevant security requirements<br>2.2 Lead the development of the change management strategy<br>2.3 Negotiate the performance, and a security strategy, with the ICT service provider<br>2.4 Ensure that the risk assessment process for outsourced services complies with organisational policy<br>2.5 Ensure that risk mitigation addresses the identified risks |
| 3. Monitor the performance levels of the outsourced ICT service performance agreement | 3.1 Develop external ICT service provider SLAs<br>3.2 Ensure that the external ICT service provider agreed performance levels are maintained<br>3.3 Monitor the setting, tracking and management of SLAs, as an important part of outsourcing relationship management (ORM)<br>3.4 Ensure the continuous improvement of outsourced ICT services |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 1.5, 2.4, 2.5, 3.4 | • Identifies, analyses and evaluates complex textual information relevant to the job role |
| Writing | 1.1, 1.6, 2.1, 2.2, 2.4, 2.5, 3.1 | • Selects the document structure, language, grammar and terminology to suit the specific subject matter and audience, when developing strategies, SLAs, and continuous improvement processes |
| Oral | 1.1-1.6, 2.1-2.5, | • Uses effective listening and probing, open questioning techniques to elicit the view and |


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| | | |
|---|---|---|
| Communication | 3.1-3.4 | opinions of others, and to obtain information<br>• Participates in a verbal exchange of ideas and solutions, and uses detailed and clear language to clarify and present information, according to the requirements and the audience<br>• Uses negotiation technique, the appropriate pitch, tone and body language, reflective responses, and revises own speaking to enhance meaning and effectiveness, when negotiating with service providers |
| Numeracy | 1.2, 1.3, 1.4, 1.5, 1.6, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3 | • Uses a range of statistical, mathematical and financial calculations, formulae and functions, together with the appropriate software tools, to interpret numerical and financial data relating to cost benefit analyses, SLAs, and risk assessment, and continuous improvement processes |
| Navigate the world of work | 2.4 | • Recognises protocols and policies that must be respected and maintained in the workplace, to reach explicit goals |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.2, 2.5, 3.1, 3.2, 3.3, 3.4 | • Considers the strategic and operational potential of digital technology in order to achieve work goals, enhance work processes, create opportunities and reduce risks<br>• Draws on a broad understanding of the context, and uses a combination of analysis and intuition, to decide whether an idea is worth developing and implementing<br>• Develops plans for complex high-impact activities with strategic implications<br>• Recognises and addresses complex problems involving multiple variables |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT806 Direct outsourced ICT services | ICAICT706A Direct outsourced ICT services | Updated to meet Standards for Training Packages.<br><br>Recoded to meet AQF | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | requirements | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT806 Direct outsourced ICT services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop strategic directions for outsourcing of information and communications technology (ICT) resources, in alignment with organisational goals
- lead the development of a risk analysis strategy on outsourced ICT services
- ensure that procedures identifying risk and, measures to mitigate risk, are developed and implemented
- ensure warning systems, and an ongoing process of reviews of the risk profile of outsourced ICT services, are established
- review and monitor, the performance of service level agreements (SLAs) with external service providers.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- research and summarise, risk management principles and guidelines
- research and summarise the outsourcing strategies for ICT services
- outline business continuity issues for the organisation
- review the organisation's current functionality, including the existing data and information systems
- review the organisation's internal and external dependencies, and interdependencies
- review the organisational policies and procedures, including the risk management strategy
- review past and current, internal, external and industry disruptions
- outline the relevant legislation and regulations that impact on business continuity including:
  - workplace health and safety (WHS)


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  - environment
  - duty of care
  - contracts and service level agreements
  - business and company law
  - freedom of information
  - industrial relations
  - privacy and confidentiality
  - due diligence
  - records management
- describe the business domain and organisational requirements.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- relevant strategic-level enterprise documentation, including:
  - planning
  - financial
  - ICT infrastructure
- legislative policies.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT807 Direct research and business response to new ICT technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to direct the research, evaluation, vendor evaluation, feasibility, proof of concept (POC) evaluation of, and future business response to, new information and communications technology (ICT) that supports business strategies.

It applies to individuals who work in high-level management positions and direct the investigation and future business direction of new ICT technology in their organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Direct the initial research into new ICT | 1.1 Establish and implement, procedures to identify new ICT that may support business innovation<br>1.2 Confirm the research purpose for the evaluation of new ICT, as it relates to possible business opportunities<br>1.3 Ensure that a structured research plan is prepared in line |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | with the defined research purpose<br>1.4 Monitor the implementation of the structured research plan, to ensure that its outcomes meets the identified research purpose<br>1.5 Formulate a business case relating to the new ICT, including consideration of the organisational environment<br>1.6 Present a business case to the business stakeholders, so that the future business direction is established and agreed |
| 2. Direct the evaluation of new ICT | 2.1 Establish the evaluation criteria and methods of measurement<br>2.2 Ensure that suitable suppliers and vendors are appropriately evaluated, in order to provide credibility, quality and support for implementation<br>2.3 Oversee the preparation of a feasibility study report into the new ICT, ensuring that critical risks are identified<br>2.4 Ensure that the feasibility study of the new ICT is accurately presented to business stakeholders, so that the future business direction is established and agreed |
| 3. Direct the proof of concept evaluation of new ICT | 3.1 Ensure that the vendor's new ICT is legally acquired for a proof of concept evaluation of the new technology<br>3.2 Establish the project’s requirements, including deliverables, for a proof of concept (POC) evaluation of the new ICT<br>3.3 Endorse the project plan for POC evaluation<br>3.4 Monitor the implementation of the POC evaluation project, to ensure that project deliverables are met |
| 4. Determine future business response to new ICT technology | 4.1 Oversee the preparation of the evaluation report on the new ICT including the consequences of not implementing it<br>4.2 Ensure that the results of the new ICT evaluation are accurately presented to stakeholders, so that the future business response is established and agreed |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 3.1, 3.3, 3.4, 4.1, 4.2 | • Identifies, analyses and evaluates, complex textual information relevant to the job role |
| Writing | 1.1, 1.3, 1.5, 2.1, 2.3, 3.2, 3.3, 4.1 | • Selects the document structure, language, grammar and terminology to suit the specific subject matter and audience, in order to develop a wide variety of documentation |
| Oral Communication | 1.1-1.6, 2.1-2.4, 3.1-3.4, 4.1-4.2 | • Uses effective listening and probing, open questioning techniques, to elicit the view and opinions of others, and to obtain information<br>• Employs plain English to convey complex and abstract concepts, and information<br>• Uses negotiation techniques, the appropriate pitch, tone and body language, reflective responses, and revises own speaking, to enhance meaning and effectiveness, when presenting information to stakeholders |
| Numeracy | 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1, 4.2 | • Uses a range of statistical, mathematical and financial calculations, formulae and functions, together with appropriate software tools, to interpret numerical and financial data |
| Navigate the world of work | 1.5, 3.1 | • Takes full responsibility for identifying and considering, the organisational policies, legislation and regulations affecting new ICT technology |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 2.1, 2.3, 3.2, 3.4 | • Develops flexible plans for complex, high-impact activities with strategic implications<br>• Takes responsibility for high-impact decisions in complex situations, involving many variables and constraints<br>• Keeps abreast of innovations and good practice beyond own context, borrowing, adapting, combining and redesigning for own purposes, or using as a provocation to rethink current approaches<br>• Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and uses these to troubleshoot, and understands the uses and potential of new technology<br>• Recognises broader positive, and negative implications, of new technologies and factors all |


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| | | |
|---|---|---|
| | | relevant risks into business responses |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT807 Direct research and business response to new ICT technology | ICAICT707A Direct research and business response to new ICT technology | Updated to meet Standards for Training Packages.<br><br>Recoded and minor edits to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT807 Direct research and business response to new ICT technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- direct the research and evaluation of new information and communications technology (ICT) for an organisation, including the production of a:
  - research plan
  - business case
  - feasibility study
  - project plan
- monitor, evaluate and report on a POC evaluation project
- access and convey the conceptual information regarding new ICT technology in relation to organisational needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- research and summarise, the stakeholder business domain, business function, processes and organisation
- state and outline, the components of the business planning process relevant to the investigation of the particular new ICT technology
- review the current business practices related to conducting an investigation into new ICT technology
- summarise client business needs, with a view to expanding into new possibilities, as presented by new ICT technology
- outline customer and business liaison techniques
- identify and apply, information gathering and presentation techniques


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- summarise the quality assurance practices, to promote reliable investigation processes
- outline the vendor product directions
- interpret the general features, and capabilities, of current and emerging ICT industry-accepted technologies, and trends
- specify current industry and technology information sources
- specify and evaluate, the industry networks, key individuals and organisations within the ICT industry
- discuss the methods for evaluating new ICT technology.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- the relevant feasibility studies
- ICT technologies, suppliers and manuals
- research facilities
- codes of practice, standards, legislations and regulations
- organisational policies and procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT808 Direct the development of a knowledge management strategy for a business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to evaluate existing knowledge management processes, identify barriers to capturing knowledge, and to develop new strategies.

It applies to individuals who work in senior management positions and lead the analysis, implementation and management of emerging, and converging, information and communications technology (ICT), as they are integrated into the business process to support the organisational strategic goals.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Critically analyse existing knowledge management systems | 1.1 Critically evaluate the existing arrangements ,for the capture and use of business knowledge, from internal and external sources<br>1.2 Differentiate between knowledge management and information management systems within the organisation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Ensure that the effectiveness of existing procedures and systems is evaluated in terms of meeting the needs of clients, organisational aims, objectives and standards<br>1.4 Identify the need for improvements in the organisation's strategic use of knowledge |
| 2. Evaluate the knowledge management options | 2.1 Investigate the barriers to capturing knowledge within the organisation<br>2.2 Review evaluations and recommendations regarding the knowledge management software, with respect to its usefulness and likeliness to benefit the organisation<br>2.3 Review the investigations into incentives and reward systems to support knowledge management<br>2.4 Ensure that the required processes for maintaining an integrated knowledge management system are considered<br>2.5 Facilitate the development of a business case to determine the viability of selected options, and recommend a way forward for the organisation |
| 3. Develop a knowledge-management strategy | 3.1 Develop the knowledge management business strategy, in consultation with senior staff, for the capture and use of organisational knowledge<br>3.2 Ensure that business processes are designed to support knowledge management, according to the organisational needs and budget<br>3.3 Ensure that the technology requirements for the implementation of the strategy, are costed and included in the organisational budget cycle<br>3.4 Ensure that processes for the periodic review of knowledge management metrics within the business are in place, to maintain ongoing effectiveness and continuous improvement<br>3.5 Ensure that the knowledge management strategy meets the organisational requirements identified in the overall business plan, and business strategy |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.3, 3.4, 3.5 | • Identifies and reviews a wide variety of complex textual information, sourced from organisational documentation, electronic meeting places, communities of practice, the organisational knowledge bank and ICT vendors |
| Writing | 2.5, 3.1 | • Selects a formal document structure, organisational style and format, and subject-specific language, grammar and terminology, to develop organisational documentation |
| Oral Communication | 1.1-1.4, 2.1-2.5, 3.1-3.5 | • Uses effective listening and open questioning techniques, to elicit the view and opinions of others, and to obtain information<br>• Participates in a verbal exchange of ideas and solutions, and uses detailed and clear language to clarify and present information, according to the audience<br>• Uses the correct grammatical structures, specialised language, appropriate tone, pitch and body language, to achieve precise meaning when articulating requirements |
| Numeracy | 1.1, 1.3, 2.1, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5 | • Uses a range of mathematical and financial calculations and functions, together with the appropriate software tools, to interpret and develop numerical and financial reports, relating to costing and budgets |
| Navigate the world of work | 1.3, 3.5 | • Monitors adherence to organisational policies and procedures, and considers own role in terms of a contribution to the broader goals of the work environment |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 3.3, 3.4, 3.5 | • Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues, and contingencies<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• May use formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions<br>• Plays with possibilities as an integral part of work, identifying principles, concepts and |


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| | | |
|---|---|---|
| | | features of new perspectives and ideas<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT808 Direct the development of a knowledge management strategy for a business | ICAICT708A Direct the development of a knowledge management strategy for a business | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to Performance Criteria to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT808 Direct the development of a knowledge management strategy for a business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- critically analyse and document, the effectiveness of existing knowledge management systems
- research the knowledge management options in the marketplace
- recommend an approach that meets the organisational needs
- develop a knowledge management strategy.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise management concepts, processes and trends
- review and interpret relevant organisational policies, and legislation, that affect business operations
- research and summarise, both internal and external sources of information
- recognise the legal, ethical and security issues relating to knowledge management
- explain organisational change-management theory and methods
- discuss records management and database-management principles as they relate to knowledge management, particularly metadata.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology industry (ICT), and include access to:


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- a workplace of sufficient complexity, to enable the required level of analysis to be carried out in relation to:
  - current business processes
  - existing knowledge management systems
  - the organisational culture
- relevant enterprise strategic documentation, including:
  - strategic planning
  - financial
  - ICT infrastructure
- organisational objectives and policies.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT809 Facilitate business analysis

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to direct internal and external information and communications technology (ICT) services within a medium to large organisation.

It applies to individuals who work in high-level management positions in medium to large organisations and direct the strategic planning, risk management, and security of the internal and external ICT infrastructure of their organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Facilitate the elicitation of stakeholder business requirements for enhancements | 1.1 Review the business requirements documentation, and ensure that it is complete and according to enterprise standards<br>1.2 Ensure that the proposed project benefits align with strategic directions<br>1.3 Determine the scope, complexity, deliverables, and time lines of the business process enhancements to be undertaken |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Prioritise the enhancements that add value to business operations | 2.1 Research the business operations necessary to analyse the business domain<br>2.2 Negotiate the requirements definition with stakeholders<br>2.3 Develop a process for addressing change requests in a dynamic environment |
| 3. Provide the interface between technical and business stakeholders | 3.1 Facilitate the selection of a modelling tool for a business system<br>3.2 Facilitate the selection of information-gathering tools<br>3.3 Ensure that the requirements-analysis content addresses the project objectives<br>3.4 Participate in the development of a technical specification |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 3.1, 3.2, 3.3, 3.4 | • Identifies, analyses and evaluates complex textual information, to obtain information relevant to enterprise resource planning and management |
| Writing | 2.3, 3.4 | • Integrates information and ideas from a number of sources, utilising appropriate ICT modelling tools, specialised and cohesive language, and document structures, to meet the varied requirements of the enterprise and stakeholders |
| Oral Communication | 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4 | • Elicits the view and opinions of others, and obtains information by listening and questioning<br>• Participates in a verbal exchange of ideas/solutions, and uses detailed and clear language, to clarify and present information, according to the requirements and audience<br>• Articulates requirements and strategies clearly, using the appropriate tone, style, body language, and reflective responses, to build business relationships |


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| | | |
|---|---|---|
| Numeracy | 1.1, 1.2, 1.3, 3.4 | • Uses a range of statistical and financial calculations and functions, to interpret and compile data relating to market analysis and budgetary requirements |
| Navigate the world of work | 1.2 | • Takes full responsibility for considering own role in terms of a contribution to the broader goals of the work environment |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.3, 3.1, 3.2, 3.4 | • Develops flexible plans for complex, high-impact activities with strategic implications<br>• Takes responsibility for high-impact decisions in complex situations, involving many variables and constraints<br>• Keeps abreast of innovations and good practice beyond own context, borrowing, adapting, combining and redesigning for own purposes, or using as a provocation, to rethink current approaches<br>• Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and uses these to troubleshoot, and understands the uses and potential of new technologies |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT809 Facilitate business analysis | ICAICT709A Facilitate business analysis | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to Performance Criteria to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT809 Facilitate business analysis

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- facilitate a strategy to align information and communications technology (ICT) services, with the organisational goals
- lead the development of a strategy for risk assessment, including security for ICT assets, and ensure that the measures required to mitigate risk are applied
- produce contingency plans for business continuity
- ensure warning systems, and an ongoing process that includes regular or programmed reviews of the risk profile
- lead the development of a strategy for the implementation of the appropriate processes and procedures, to ensure that quality expectations are met.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise AS/NZS ISO 31000:2009 "risk management requirements"
- explain application of security products
- review business continuity issues for the organisation
- review the organisation’s industry and current functionality, including the existing data and information systems
- review the organisation's internal and external dependencies, and interdependencies
- outline the organisational policies and procedures, including the risk management strategy
- review and outline documented industry disruptions.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- relevant strategic level enterprise documentation, including:
  - planning
  - financial
  - ICT infrastructure
- standards, codes of practice, legislation and regulations.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT810 Synchronise ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure that internal, and external, information and communications technology (ICT) projects fit within the strategic and economic constraints of the organisation, and deliver the expected financial benefits.

It applies to individuals who work in high-level management positions, plan and manage the implementation of sustainability strategies, and lead the analysis, implementation and management of emerging, and converging, ICT as they are integrated into the business process, to support organisational strategic goals and meet sustainability targets.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate project opportunities | 1.1 Critically evaluate the project proposals in a strategic context<br>1.2 Review financial criteria to determine economic feasibility of projects<br>1.3 Prioritise projects to leverage financial resources |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Monitor the project performance | 2.1 Direct the project schedule and budget development<br>2.2 Direct the integration of the project activities<br>2.3 Critically evaluate project performance, using earned value techniques<br>2.4 Proactively manage strategic projects' risks and issues<br>2.5 Identify and take action to address unsatisfactory performance |
| 3. Manage project completion activities | 3.1 Direct financial completion<br>3.2 Establish the benefits realisation plans<br>3.3 Apply project lessons learned strategically |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.3, 2.5 | • Identifies, critically analyses and evaluates a wide range of complex organisational documentation, relevant to the projects under consideration |
| Writing | 1.3, 2.1, 2.2, 3.2, 3.3 | • Selects a formal document structure and uses technical terminology, the correct spelling and grammar, and a high degree of accuracy, to develop project schedules, plans and financial reports |
| Oral Communication | 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3 | • Uses effective listening and probing, open questioning techniques to elicit information<br>• Articulates requirements and strategies clearly, in a courteous manner, using appropriate pitch, tone, body language and reflective responses |
| Numeracy | 1.1, 1.2, 1.3, 2.1, 2.2, 3.3, 2.5, 3.1, 3.2 | • Uses a range of statistical, mathematical and financial calculations, formulae and functions, together with the appropriate software tools, to determine the economic feasibility, earned value, and the benefit realisation plan, of projects |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, | • Develops plans for complex high-impact activities with strategic implications |


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| | | |
|---|---|---|
| | 3.2, 3.3 | • Takes responsibility for high-impact decisions in complex situations, involving many variables and constraints<br>• Reflects on the application of key principles in a particular context, the appropriateness and effectiveness of different sources of information, and problem-solving processes, for that context and the implications for future situations<br>• Explores ideas that have the potential to lead to radical departures from the current situation<br>• Considers the strategic and operational potential of digital trends, to achieve work goals, enhance work processes, create opportunities, pose threats, and enhance or reduce risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT810 Synchronise ICT projects | ICAICT710A Synchronise IT projects | Updated to meet Standards for Training Packages.<br><br>Minor edit to title.<br><br>Recoded and minor changes to Performance Criteria to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT810 Synchronise ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select the project opportunities that align with the organisational strategic and financial goals
- review and validate, high priority projects to be undertaken based on the trade-offs between benefits, risks and scarce financial resources
- develop the schedule and budget for selected projects, to enable ongoing earned value performance measurement
- review project performance and initiate appropriate corrective actions and audit activity, where necessary
- establish and monitor, an agreed project benefits realisation plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline appropriate cost management and estimating methodologies, techniques and tools, their capabilities and limitations, applicability and outcomes
- discuss business and commercial issues
- discuss cost schedule control systems
- outline the processes of delegation and the management of responsibilities for cost management
- discuss the differences in work content, risk, processes, tools and techniques that apply in the various phases of recurring project life cycles, within a volatile program environment
- explain the direction of project development and the management of program budgets
- outline human resource management policies
- discuss how to apply the principles and techniques relating to:


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  - negotiation
  - risk management, including risk sharing and transfer
- outline the organisational guidance and attitudes to cost management
- outline organisational procurement guidelines
- outline organisational policies, including project governance policies
- discuss the principles of program project-cost management and its application
- discuss project management systems, tools and techniques
- outline the project specifications and objectives
- outline the public relations policies and strategies
- discuss the relationship of cost, time and resources, to the project management framework
- describe the political climate and the organisation's culture
- discuss the use of the budget as a control mechanism.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- relevant strategic level enterprise documentation, including:
  - planning
  - financial
  - ICT infrastructure
- organisational policies.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT811 Manage an information architecture project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge to develop and test an information architecture prototype that meets organisational requirements.

It applies to individuals who work in high-level management positions and lead the analysis, implementation and management of emerging, and converging, information and communications technology (ICT) as they are integrated into the business process to support organisational strategic goals.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define the content needs | 1.1 Research the strategic intent of the website, or system, from the business requirements and client expectations<br>1.2 Provide direction in order to develop the information requirements, based on the business and client requirements<br>1.3 Synthesise the required information, and group it into business schemes related to the business structure<br>1.4 Direct the determination of content requirements for each |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | process |
| 2. Contribute to the description of the system and transmission media | 2.1 Consult with network and system specialists<br>2.2 Critically analyse the features of the physical environment, to interface with the information system architecture<br>2.3 Estimate the traffic content and volumes, based on the business requirements |
| 3. Supervise the development of content structure and navigation plan | 3.1 Organise the information into related topics<br>3.2 Ensure that the information hierarchy is in a valid sequence<br>3.3 Provide direction for clear, valid and intuitive labelling<br>3.4 Review and commit to the feasibility of architecture design<br>3.5 Develop the acceptance criteria |
| 4. Implement the navigation system development | 4.1 Coordinate the fit of navigational systems with the business requirements<br>4.2 Supervise the development of navigational search subsystems<br>4.3 Lead the development of consistent, and logical, labelling systems |
| 5. Finalise the testing and accept the information architecture model | 5.1 Lead the construction of an information architecture prototype<br>5.2 Ensure that a broad sample of business clients are engaged<br>5.3 Ensure that the site content meets the business needs<br>5.4 Lead the testing of the information architecture prototype, to test that it operates on the chosen system, and transmission media<br>5.5 Supervise the user-acceptance test |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.2, 2.3, 3.1, 3.2, 3.4, 4.1, 5.3, 5.4 | • Organises, evaluates and critiques ideas, and information, from a wide range of complex texts<br>• Draws on a broad range of strategies, to build and maintain understanding throughout complex texts |
| Writing | 1.2, 1.3, 2.3, 3.2, 3.3, 3.5 | • Selects the structure, language, grammar and terminology to suit the specific subject matter and audience, in order to develop a wide variety of documentation and directions, including direction for the content requirements, information hierarchy, navigational search subsystems, labelling systems and user-acceptance test |
| Oral Communication | 1.1-1.4, 2.1, 3.3, 3.4, 4.1, 4.2, 4.3, 5.1, 5.4, 5.5 | • Uses effective listening and probing, open questioning techniques to elicit the view and opinions of others, and to obtain information<br>• Employs plain English to convey complex and abstract concepts, and information<br>• Articulates requirements and strategies clearly, in a courteous manner, using the appropriate pitch, tone, body language and reflective responses |
| Navigate the world of work | 1.1, 1.2, 1.3, 2.3, 3.3 | • Takes a lead role in the development of organisational goals, roles and responsibilities |
| Get the work done | 1.1, 1.3, 1.4, 2.2, 3.1, 3.2, 3.4, 4.1, 4.2, 4.3, 5.1, 5.4 | • Develops flexible plans for complex, high-impact activities with strategic implications<br>• Takes responsibility for high-impact decisions in complex situations, involving many variables and constraints<br>• Keeps abreast of innovations and good practice beyond own context, borrowing, adapting, combining and redesigning for own purposes, or using as a provocation to rethink current approaches<br>• Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and uses these to troubleshoot, and understands the uses and potential of new technologies |


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# Unit Mapping Information

| **Code and title**<br><br>**current version** | **Code and title**<br><br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT811 Manage an information architecture project | ICAICT711A Manage an information architecture project | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to Performance Criteria to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT811 Manage an information architecture project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the strategic and business intent of the website or system
- conduct business meetings, applying effective communication techniques
- research and determine the essential requirements of a product, applying quality management principles
- describe the features of the website or system
- develop the navigation system
- construct an information architecture prototype
- test the prototype with the operating system and the transition media
- supervise the user acceptance test.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- examine the equity and diversity principles relevant to information architecture projects
- research and critique organisational policies and procedures, as they apply to the project
- determine and outline the public sector legislation, codes of practice and other formal agreements, that directly impact on the business operations
- evaluate the components of telecommunications networks
- research and synthesise the workplace, and industry environment, as it applies to information architecture.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- the computer system and a web-host workplace

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT812 Develop a business intelligence framework

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge to evaluate the business intelligence (BI) requirements of an organisation, and to select the correct methodologies to develop a BI solution.

It applies to individuals who work in high-level management positions and lead the analysis, implementation and management of emerging, and converging, information and communications technology (ICT) as they are integrated into the business process, to support the organisational strategic goals of medium to large organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Elicit the business intelligence requirements | 1.1 Articulate the benefits of business intelligence<br>1.2 Select the appropriate system development methodology, through the analysis of a range of options<br>1.3 Critically evaluate the impact of business intelligence on the enterprise |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Select the appropriate business model for a data repository<br>1.5 Adopt a metadata standard for the enterprise<br>1.6 Establish the appropriate data analysis techniques |
| 2. Direct the business intelligence data manipulation | 2.1 Identify the data sources and scope<br>2.2 Evaluate and endorse the selected data-manipulation methods<br>2.3 Critically review, and commit to, the feasibility of the architecture design<br>2.4 Develop the acceptance criteria<br>2.5 Endorse the selected data-modelling techniques and processes<br>2.6 Endorse a load balancing algorithm for optimum processing<br>2.7 Sign off the design specifications |
| 3. Endorse the business intelligence solution architecture | 3.1 Ensure that the data-warehousing management techniques and processes are according to the specifications<br>3.2 Lead the scoping of logical data models<br>3.3 Supervise the selection of middleware tools<br>3.4 Critically review, and commit to, a searchable data repository solution |
| 4. Finalise the testing and accept the framework | 4.1 Finalise the physical data model<br>4.2 Complete testing of the overall model<br>4.3 Test the security<br>4.4 Test the integrity<br>4.5 Perform a user-acceptance test |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 1.6, 2.1, 2.3, | • Organises, evaluates and critiques ideas, and information, from a wide range of complex |


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| | | |
|---|---|---|
| | 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 4.1 | texts<br>• Draws on a broad range of strategies to build and maintain understanding throughout complex texts |
| Writing | 1.1, 1.3, 1.6, 2.4, 2.7, 4.1, 4.5 | • Integrates information and ideas from a number of sources, utilising the appropriate BI software tools, specialised and cohesive language, and appropriate document structures, to meet the varied requirements of the organisation and the task |
| Oral Communication | 1.1, 2.1, 2.2, 2.3, 2.5, 2.6, 3.2, 3.3, 3.4, 4.5 | • Elicits information and ideas using plain English, translating BI specific terminology when necessary, and using effective listening and questioning techniques<br>• Uses specific and complex BI terminology, to liaise with team members, review and endorse methodology and monitor the project<br>• Articulates the requirements and methodologies clearly, using the appropriate tone, style, body language and reflective responses |
| Numeracy | 1.1, 1.3, 1.4, 1.6, 2.3, 2.4, 2.5, 2.6, 2.7, 3.2, 3.4, 4.1, 4.2, 4.5 | • Uses a range of complex statistical, mathematical and financial calculations, formulae and functions together with the appropriate BI software tools, in the development of a BI framework |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.2, 3.3, 4.2, 4.3, 4.5 | • Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and uses these to develop a BI framework<br>• Recognises the critical importance of clarifying, focusing and aligning goals, and expectations, using the process to build ownership of, and broad commitment to, achieving outcomes<br>• Takes responsibility for high-impact decision in complex situations, involving many variables and constraints |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT812 Develop a business intelligence framework | ICAICT712A Develop a business intelligence framework | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to Performance Criteria to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT812 Develop a business intelligence framework

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and critically analyse the business intelligence requirements
- review, analyse and direct, business intelligence data manipulation
- review, critically analyse and endorse, the proposed business intelligence solution architecture
- initiate and contrast the tests required for the intelligence framework, for final acceptance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate the application of system development methodologies and other technical considerations including:
  - managing and using metadata
  - data modelling
  - data warehousing/back-end software alternatives
  - business analytics
  - business intelligence tools
- analyse the organisational policies and procedures, as they apply to the business intelligence frameworks
- discuss behaviour theories as they apply to business intelligence, including:
  - responsibility and achievement
  - affiliation management
  - motivation
- appraise and evaluate, the business intelligence (BI) procedures


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- interpret the workplace and industry environmental conditions, as they apply to business intelligence.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a business intelligence focus
- relevant enterprise documentation, including human resource (HR) and quality management policies.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT813 Manage ICT services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply the principles of service quality management and to develop a code of practice for information and communications technology (ICT) service management.

It applies to individuals who work in senior management positions and manage a wide range of ICT projects, and lead the analysis, implementation and management of emerging, and converging, ICTs as they are integrated into the business process to support organisational strategic goals.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to manage ICT services | 1.1 Identify the quality requirement principles to provide ICT service provision, according to the business needs and expectations<br>1.2 Research and critically analyse, the appropriate service processes<br>1.3 Analyse continual improvement processes, to align and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | realign, the ICT services to business needs |
| 2. Develop the quality requirements for ICT service management | 2.1 Identify the specific quality requirements to improve the service management processes<br>2.2 Align ICT services with the business, applying service management concepts<br>2.3 Develop the strategies for the control, delivery and support of ICT services |
| 3. Develop a code of practice for ICT service management | 3.1 Research and critically analyse, best practice processes<br>3.2 Document best practice processes for ICT service management<br>3.3 Implement the identified best practice processes<br>3.4 Evaluate, monitor and improve ICT service management |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.1, 3.1, 3.4 | • Identifies, analyses and critically evaluates, complex online and hard copy documentation containing service-management and technology-specific terminology, in order to research, develop, monitor and improve, a quality service management process |
| Writing | 2.2, 2.3, 3.2, 3.4 | • Uses plain English, the appropriate grammatical structures and terminology, diagrams and flow charts, and the formatting, and document structure, relevant to the subject matter and audience, to develop strategies and best practice processes |
| Oral Communication | 1.1-1.3, 2.1-2.3, 3.1, 3.3, 3.4 | • Expresses research and resource requirements clearly, and directs discussions to elicit information, and the views and opinions of others, by using effective listening and open, questioning techniques<br>• Articulates requirements and methodologies clearly, using the appropriate tone, style, body language and reflective responses |
| Get the work | 1.1-1.3, 2.1-2.3, | • Considers the strategic and operational potential of |


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| | | |
|---|---|---|
| done | 3.1, 3.4 | digital technology to achieve work goals, enhance work processes, create opportunities and reduce risks<br>• Draws on a broad understanding of the context and uses a combination of analysis and intuition, to decide whether an idea is worth developing and implementing<br>• Develops plans for complex high-impact activities with strategic implications<br>• Recognises and addresses complex problems involving multiple variables |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT813 Manage ICT services | ICAICT713A Manage IT services | Updated to meet Standards for Training Packages.<br><br>Minor edit to title.<br><br>Recoded and minor changes to Performance Criteria to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT813 Manage ICT services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and critically analyse the provision of quality information and communications technology (ICT) services
- review, then develop and implement, procedures and processes to improve the quality of ICT service management
- critically review, evaluate, monitor and improve the ICT service management.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- review and appraise ICT service management concepts and processes
- research and critically review, the quality assurance procedures in ICT services
- discriminate and summarise, industry best practice processes in ICT services
- summarise and contrast, the technical terminology relevant to service management.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general ICT industry, and include access to:

- a current service organisational chart
- current service logs and procedures
- an organisational mission statement.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT814 Develop cloud computing strategies for a business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop a cloud computing strategy for establishing cloud computing services as a key business enabler.

It applies to senior management, including strategic business analysts and chief information officers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the existing business ICT system assets | 1.1 Review the business assets and identify the most appropriate for possible cloud deployment<br>1.2 Evaluate each asset's risk tolerance to the business, for possible cloud deployment |
| 2. Select the most suitable deployment and/or delivery model for each asset | 2.1 Map each asset to potential cloud deployment models<br>2.2 Review and select the most relevant delivery model for each asset<br>2.3 Document the security risks to the business as a result of |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | using the identified deployment and delivery models |
| 3. Develop a cloud implementation strategy | 3.1 Develop a cloud implementation plan, incorporating the most appropriate deployment and delivery models, in line with the enterprise requirements<br>3.2 Develop a costing for the technology requirements of the implementation proposal<br>3.3 Develop processes for the periodic review of the cloud service metrics, associated with the implementation proposal |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.2 | • Organises, evaluates and critiques ideas and information from a range of complex texts |
| Writing | 2.1, 2.3, 3.1 | • Prepares documentation expressing ideas, explores complex issues and is constructed logically, succinctly and accurately |
| Numeracy | 3.2 | • Analyses and synthesises highly embedded mathematical information in a broad range of tasks and texts |
| Navigate the world of work | 3.1 | • Develops and implements strategies that ensures that the organisational policies, procedures and regulatory requirements are being met |
| Get the work done | 3.1, 3.3 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Identifies the key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision-making strategies, where appropriate<br>• Uses digital technologies to manage business operations and actively investigates new technologies, for strategic and operational purposes |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTICT814 Develop cloud computing strategies for a business | ICAICT814A Develop cloud computing strategies for a business | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT814 Develop cloud computing strategies for a business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and document, the effectiveness of existing cloud computing deployment and delivery models
- research the cloud computing options in the marketplace
- develop a cloud computing implementation strategy that meets the enterprise needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- research and synthesise information to determine and document current business processes, and cloud service sources
- define and employ coaching, mentoring and teamwork skills to ensure the support of cloud computing strategies as an ongoing initiative
- investigate and analyse cloud computing concepts, processes and trends
- synthesise the relevant enterprise policies and legislation that affect business operations, specifically privacy legislation
- discriminate between the legal, ethical and security issues relating to cloud computing
- evaluate organisational change-management theory and methods
- determine the risk tolerance issues, as they relate to the development of cloud computing strategies
- investigate and critically analyse, the methods of deploying cloud technology strategies
- investigate and critically analyse, the security issues relevant to a business.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the general information and communications technology (ICT) industry, and include access to:

- a workplace of sufficient complexity, to enable the required level of analysis to be carried out in relation to current business processes, and possible future cloud computing solutions
- relevant enterprise strategic documentation, including:
  - strategic planning
  - financial
  - ICT infrastructure
- enterprise objectives and policies.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT815 Manage automated ICT system applications using enterprise wide operating system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the performance outcomes, skills and knowledge required to apply the enterprise wide operating system to system automation in a distributed computing environment as used in telecommunications applications.

It applies to telecommunication engineers who manage automated systems within a telecommunications network including databases, files systems and user administration.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

General ICT

## Elements and Performance Criteria

| **Elements**<br>*Elements describe the essential outcomes.* | **Performance Criteria**<br>*Performance criteria describe the performance needed to demonstrate achievement of the element.* |
|---|---|
| 1. Operate an enterprise wide operating system | 1.1 Modify boot options by operating an enterprise wide operating system<br>1.2 Shutdown a networked operating system using system commands with qualifiers<br>1.3 Manage files using file management commands and wildcards and creating disk partitions and other media file systems |


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| | |
|---|---|
| | 1.4 Mount and unmount file systems using system commands<br>1.5 Verify the integrity of file systems using system utilities<br>1.6 Configure telecommunication applications by using system commands with special permission modes<br>1.7 Critically analyse, evaluate and apply the enterprise wide operating system features to a given telecommunications multi-user application using distributed computing |
| 2. Apply system functions | 2.1 Use the command line interface to interact with shells and commands to the telecommunications application on distributed computing<br>2.2 Manage files by applying regular expressions with system functions<br>2.3 Send text files and output streams through text utilities using commands<br>2.4 Evaluate and apply enterprise wide operating system functions to a telecommunications application on distributed computing to create menu options |
| 3. Manage user login environment and customisation | 3.1 Manage user and group accounts to the telecommunications application on distributed computing<br>3.2 Change user and group profiles to allowed security access level using commands<br>3.3 Scan log files for activity using commands<br>3.4 Configure the user environment for setting user and global profiles<br>3.5 Record the configuration settings |
| 4. Manage system level functions | 4.1 Automate scheduling using the system ‘cron’ command<br>4.2 Critically analyse the need for backup strategy in a telecommunications network application<br>4.3 Plan a backup strategy to maintain redundancy of the system<br>4.4 Configure the system to perform scheduled backing up the file system to various media<br>4.5 Verify integrity of backup operations by restoring system using backup files<br>4.6 Configure system log files for administration and security needs<br>4.7 Manage a print server and print files to provide customer service |


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| | |
|---|---|
| | 4.8 Document the configuration backup schedules and system logs |
| 5. Complete evaluation and configuration documentation | 5.1 Produce a project evaluation report on the application of Unix features to a given telecommunications multi-user application using distributed computing with recommendations on improvements to the system<br>5.2 Produce a report on the management and configuration of user applications and system level functions |

# Foundation Skills

*This section describes language, literacy and numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.7, 2.4, 3.3, 4.2 | • Evaluates and critiques ideas and information from a range of complex texts |
| Writing | 2.4, 3.5, 4.2, 4.8, 5.1, 5.2 | • Generates complex written texts demonstrating sophisticated writing skills |
| Oral Communication | 4.2, 5.1, 5.2 | • Presents complex and effective spoken communication in a broad range of contexts |
| Numeracy | 1.6, 3.4, 3.5, 4.2, 4.4, 4.6 | • Applies a wide range of highly developed mathematical and problem solving strategies and techniques to a wide range of contexts |
| Get the work done | 1.1-1.7, 2.1-2.4, 3.1-3.4, 4.1-4.7, 5.2 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Makes high impact decisions in a complex and diverse environment, using input from a range of sources<br>• Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision making strategies where appropriate<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisations goals<br>• Uses digital technologies to manage business operations and actively investigates new |


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| | | |
|---|---|---|
| | | technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalent status** |
|---|---|---|---|
| ICTICT815 Manage automated ICT system applications using enterprise wide operating system | ICTITU7106B Manage automated ICT system applications using Unix | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PC's to meet AQF requirements | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT815 Manage automated ICT system applications using enterprise wide operating system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- manage ICT system functions using a enterprise wide operating system
- analyse system functions based on data
- produce a report on the evaluation of the system
- document recommendations for improvement

## Knowledge Evidence

Evidence of the ability to:

- analyse an automated systems
- critique communication and multi user telecommunications systems
- appraise distributed computing
- appraise encoding and programming techniques
- analyse and report on network security
- describe networking infrastructure
- describe realisation of software simulation
- apply enterprise wide operating system commands.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications -Information Technology field of work and include access to:

- a telecommunications operations site
- unix based system to manage automated functions
- special purpose tools, equipment, materials
- industry software packages.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTICT516 Test telecommunications network using virtual instruments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to apply simulation testing techniques to telecommunication systems.

It applies to technical staff who work with optical communication systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – IT Use

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan simulation of hardware instruments | 1.1 Arrange access to site according to required procedure<br>1.2 Determine specific applications for virtual instruments in telecommunication systems<br>1.3 Determine features of virtual instruments applicable to telecommunication systems, including limitations of virtual instruments<br>1.4 Select a range of simple and complex virtual instruments applicable to |


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| | |
|---|---|
| | telecommunication systems |
| 2. Perform simulation techniques | 2.1 Perform measurements on telecommunication systems using simple virtual instruments<br>2.2 Simulate and display properties of a modulated signal with software generated instruments following enterprise work health and safety (WHS) processes and procedures<br>2.3 Simulate and display a data signal transmitted through a band-limited channel<br>2.4 Control virtual instruments using data bus operation |
| 3. Analyse simulation measurements | 3.1 Determine conversion processes used in virtual instruments<br>3.2 Document potential effect of a simulation algorithm on readings taken<br>3.3 Analyse measurements in context of conversion process and simulation algorithm |
| 4. Report measurement results | 4.1 Prepare report on measurement results<br>4.2 Submit report to supervisor |

# Foundation Skills

*This section describes language, literacy and numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 3.3 | • Draws on a range of strategies to research and understand complex texts<br>• Analyses and consolidates test results and data from a range of sources, against defined criteria and requirements |
| Writing | 1.1, 3.2, 4.1, 4.2 | • Demonstrates sophisticated writing skills by selecting appropriate conventions and stylistic devices to express precise meaning |
| Oral Communication | 1.1, 4.2 | • Establishes effective spoken communication in a range of contexts |
| Numeracy | 1.3, 2.1-2.4, 3.1-3.3, 4.1 | • Selects and applies a wide range of mathematical and problem solving techniques in a broad range of contexts<br>• Uses a wide range of formal mathematical language and representation to communicate mathematically |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 2.2 | • Takes full responsibility for following policies, procedures and legislative requirements and identifies organisational implications of new legislation or regulation |
| Get the work done | 1.1-1.4, 2.1-2.4, 3.1, 3.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause<br>• Uses and investigates new digital technologies and applications for testing, managing and manipulating data and communications effectively, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTITU516 Test telecommunications network using virtual instruments | ICTITU5144A Test telecommunications network using virtual instruments | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTICT516 Test telecommunications network using virtual instruments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- interpret and use equipment and system manuals and specifications
- use latest virtual instrument test equipment
- simulate signals and systems using complex virtual instruments
- analyse and report on results of simulation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the applications of virtual instruments
- explain current and emerging developments in relation to virtual instruments
- describe instrumentation principles and practices
- identify internet support services
- outline modulation methods, AM, FM and digital formats
- name sampling and data conversion processes
- explain virtual instrument features and benefits.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Information Technology use field of work and include access to:

- internet sites


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- electronic workbench or similar software
- virtual instrument applications and media
- a workplace conducting operations involving virtual instruments, with support from a competent supervisor or mentor
- telecommunications equipment suitable for integrating projects
- industry software packages (where applicable).

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL401 Apply business acumen to network planning

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to consider business drivers in a decision-making process for network planning and investment. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse forecasts using customer demand | 1.1 Gather and organise information concerning customer service and usage data to determine customer demand<br>1.2 Determine trends in customer demands in specific customer operating environments and markets<br>1.3 Assess key measures of capacity and customer demand for forecast |


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| | |
|---|---|
| 2. Build models to develop business cases | 2.1 Construct a model to represent key options to formulate strategic proposals in network planning<br>2.2 Determine rights of carriers and service providers in installing facilities under Commonwealth legislation<br>2.3 Produce a strategic network plan using key variables, and communicate them to intended audience<br>2.4 Apply business case methodology to determine key economic measures and risks to business success<br>2.5 Evaluate business value and options to recommend appropriate planning strategy |
| 3. Apply financial analysis | 3.1 Use a financial investment tool relevant to the business environment to determine financial viability of the planning project<br>3.2 Apply key economic measures in an analysis process and develop business strategy<br>3.3 Determine relevant level of financial analysis required to optimise network planning |
| 4. Analyse demographic trends for strategy development | 4.1 Gather demographic data and determine impact of demographic diversity on planning strategies<br>4.2 Analyse data and produce demographic trends for use in strategy developments in network planning |
| 5. Assess technology implementation | 5.1 Determine unit costs associated with technologies and products by using lifecycle of technologies<br>5.2 Research what different technology bases can deliver and circumstances and locations in which they should be successfully deployed |
| 6. Evaluate network deployment architecture | 6.1 Evaluate network deployment architecture using network deployment rules and reasoning behind architecture rules<br>6.2 Produce a business model of network planning, applying commercial considerations and exemption process |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 2.2, 2.5, 4.1, 5.2, 6.1 | • Identifies and evaluates text to determine key information and specific requirements and responsibilities |
| Writing | 1.2, 2.1, 2.3, 2.4, 3.1, 3.2, 6.2 | • Develops material for a specific audience using clear and detailed language<br>• Uses expected forms and conventions to present required information |
| Oral Communication | 2.3 | • Articulates specific information using an appropriate tone and vocabulary for intended audience |
| Numeracy | 1.1-1.3, 2.1, 2.4, 3.1-3.3, 4.1, 4.2, 5.1, 6.1, 6.2 | • Interprets numerical information and applies mathematical calculations relating to time durations and financial consequences<br>• Applies different financial models to the planning process and highlights benefits and drawbacks of different strategies |
| Navigate the world of work | 2.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 2.3 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers<br>• Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts |
| Get the work done | 1.1-1.3, 2.1, 2.2, 2.4, 2.5, 3.1-3.3, 4.1, 4.2, 5.2, 6.1, 6.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNPL401 Apply business acumen to network planning | ICTNPL4107A Apply business acumen to network planning | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL401 Apply business acumen to network planning

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- analyse forecasts using customer demand
- build accurate models to develop business cases, applying financial analysis
- analyse demographic trends for strategy development
- assess technology implementation
- communicate with customers
- evaluate network deployment architecture.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain different forms of business modelling
- identify commercial considerations, including:
  - capital expenditure (CAPEX)
  - operational expenditure (OPEX)
  - product revenue and demand versus network cost
  - return on investment (RoI)
  - time to market
- identify role of demographics in the planning process
- outline emerging technologies of telecommunications
- identify financial investment tools:
  - cost-benefit analysis
  - investment management system


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  - net present value (NPV)
- identify financial models
- explain forecasting of trends
- identify and explain relevant legislation as it applies to:
  - Australian competition and consumer affairs
  - telecommunications industry regulatory accounting
  - universal services obligations
- describe network planning processes.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- network planning data
- relevant databases
- business and financial models
- systems and deployment rules and relevant legislation
- planning processes and regulatory frameworks.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL402 Plan the deployment of access network architectures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan deployment of network architecture when conducting access network telecommunications work.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope the project | 1.1 Prepare for work according to site specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.2 Determine type of access network by accessing and using network information sources<br>1.3 Produce a brief on how access network architecture components relate to the larger network and their impact on the work |


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| | |
|---|---|
| | 1.4 Evaluate equipment type and technologies to be considered, to determine availability and compatibility with existing network equipment<br>1.5 Obtain resources and equipment needed for the work according to enterprise procedures and check for correct operation and safety<br>1.6 Assess capacity limitations of various platforms in the context of the work to ensure maximum network performance<br>1.7 Determine product capability and calculate allowable capacity of the access network to allow for network growth |
| 2. Produce deployment plan for an Access Network | 2.1 Conduct planning work using current equipment components and complying with access network deployment rules and exemption process criteria<br>2.2 Produce a preliminary plan on deployment of the network that maintains integrity of the access network<br>2.3 Discuss unexpected situations with appropriate personnel, with consideration to job specifications, safety and enterprise procedures to establish a solution<br>2.4 Review plan to ensure it complies with all standards and codes required when working on network access, and where appropriate make adjustments |
| 3. Complete work and report its impact on network access | 3.1 Produce final deployment plan including recommendations agreed with customer<br>3.2 Provide a report on network monitoring techniques used to manage the network to ensure it is performing at optimum level |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 1.4-1.7, 2.1, 2.4 | • Identifies and evaluates written and visual text in specialised workplace documentation to determine key information and specific requirements |
| Writing | 1.3, 2.2, 3.2 | • Develops material for a specific audience using clear and detailed language and expected forms and conventions |


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| | | |
|---|---|---|
| Oral Communication | 1.6, 1.7, 2.3, 3.1, 3.2 | • Articulates specific information using an appropriate tone and vocabulary for the intended audience |
| Numeracy | 1.6, 1.7, 3.1, 3.2 | • Employs mathematical calculations to determine features and limitations of different networks |
| Navigate the world of work | 1.1, 1.5, 2.1, 2.3, 2.4 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 2.3 | • Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers |
| Get the work done | 1.1-1.7, 2.1, 3.1 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL402 Plan the deployment of access network architectures | ICTNPL4108A Plan the deployment of access network architectures | Updated to meet standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL402 Plan the deployment of access network architectures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- gather data appropriately within information sources and evaluate how the data relates to the access architecture
- source current major equipment and technologies used in an access network and detail their compatibilities
- accurately plan deployment of an access network architecture, including deployment rules, capacity and capability management and monitoring techniques
- complete work within a timeframe typically expected of the discipline, work function and industrial environment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the features of an access network, including:
  - architectures and geographical categorisation
  - information sources
  - technology and equipment
- define capacity and capability management
- identify capacity limitation of various platforms
- describe commercial considerations of access network deployment
- identify compatibility issues of technology and equipment
- explain currency of technology and equipment use
- summarise enterprise deployment rules and rationale


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- identify exemption process criteria
- identify major equipment components of a modern access architecture
- describe monitoring techniques to manage the access network
- outline network topologies
- identify product capability and availability allowable within an access network
- outline telecommunications access networks issues and challenges.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- network design documentation and other site-related documentation
- equipment specifications
- live network or training facilities
- organisational guidelines
- networked computers
- networked telecommunications components.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL403 Evaluate the capability of access networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to gather information on the types of access networks and evaluate their capability to meet present and future demands, including evaluation and comparison of competing access network technologies.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope the project | 1.1 Prepare for given work according to site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.2 Determine types of access networks currently deployed by accessing |


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| | |
|---|---|
| | and using network information sources<br>1.3 Determine nature, quantity, architecture and condition of existing network equipment and their attributes<br>1.4 Produce a brief on deployment scope of current access networks, including geographical limitations and their contribution to the larger network |
| 2. Assess capability and technologies of current and future access networks | 2.1 Produce layout of the topology of identified types of access networks with network elements clearly indicated<br>2.2 Evaluate equipment type and technologies of the access network to determine compatibility with existing network equipment and interoperability with other networks<br>2.3 Assess current and future capability and limitations of the network to ensure potential growth of the network<br>2.4 Determine future offerings of product and services outlining product offerings allowable over each network |
| 3. Document capability evaluation | 3.1 Assess capability of current access networks to deliver products and services to customers<br>3.2 Recommend preferred solutions for network growth with future capabilities |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.4, 2.2-2.4, 3.1 | • Identifies and evaluates written and visual text in specialised workplace documentation to determine key information and specific requirements |
| Writing | 1.4, 2.1, 3.2 | • Develops material for a specific audience using clear and detailed language and expected forms and conventions |
| Oral Communication | 1.3, 1.4, 3.2 | • Articulates technical information using an appropriate tone and vocabulary for intended audience |
| Numeracy | 1.4, 2.1, 2.2 | • Employs mathematical calculations to determine features and limitations of different networks and equipment |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 3.2 | • Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts |
| Get the work done | 1.1-1.3, 2.2-2.4, 3.1, 3.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL403 Evaluate the capability of access networks | ICTNPL4109A Evaluate the capability of access networks | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL403 Evaluate the capability of access networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- evaluate capability and limitations of the various access network technologies for present and future needs
- determine and source equipment that will be used across the spectrum of access network technologies
- outline product offerings allowable across all competing access network technologies.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify access networks from information sources
- explain access networks in terms of:
  - common attributes and features
  - typical access network technologies and topologies
- explain how to assess capability and limitations of a network including:
  - its contribution to the boarder network; and,
  - its capacity to deliver customer products and services
- outline typical problems and challenges that arise from working with access network technologies
- explain the basis on which various network technologies are selected.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- network design documentation and other site related documentation
- equipment specifications
- live network or training facilities
- organisational guidelines
- networked computers
- networked telecommunications components.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL404 Evaluate the planning requirements for provisioning a telecommunications building facility

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to evaluate building service capability to meet present and future demands for a building facility housing telecommunications equipment, including gathering information and evaluating allowable types of building services, power systems, air conditioning, fire safety services, energy use and alarm systems within each technology.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope the | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards including work health and safety (WHS) processes |


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| | |
|---|---|
| project | and procedures<br>1.2 Obtain building plans and specifications from planning section<br>1.3 Determine type of facility and building services required to house telecommunications network equipment and plant to efficiently support the network<br>1.4 Determine the purpose of the main areas or rooms in the network building and note special requirements to support safe operation of the facility<br>1.5 Verify who is responsible for planning, provisioning, maintaining and operation of a facility |
| 2. Evaluate power requirements | 2.1 Assess how functions of the main power and building services support network equipment and the impact if building services are not provided correctly or fail<br>2.2 Produce a schematic diagram of the relationship of electrical components in an end-to-end power and building services system<br>2.3 Assess different types of power sources likely to supply network equipment and determine benefits or deficiencies<br>2.4 Determine how resiliency is built into provisioning of a reliable power supply and how different levels of reliability can be achieved<br>2.5 Evaluate the impact of energy use and energy loads in the facility and determine how energy use can be minimised |
| 3. Evaluate requirements of air conditioning services | 3.1 Assess the main types of air conditioning components or plant available and their suitability to building requirements, and draw a schematic diagram of proposed layout<br>3.2 Determine how different equipment rack heat dissipation and size of a load can affect cooling needs<br>3.3 Evaluate how deployment of network equipment and other supporting infrastructure can affect performance and loading of the installed air conditioner |
| 4. Evaluate requirements of fire safety services | 4.1 Assess type, functions and components of fire service protection systems for fire and smoke required in a network facility for the safety and protection of people and assets<br>4.2 Use the building plan to locate fire systems to be deployed to comply with fire regulations<br>4.3 Evaluate effect equipment deployments may have on fire services and its ability to protect the site and maintain regulatory obligations |


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|---|---|
| 5. Evaluate requirements of alarm systems | 5.1 Determine alarm requirements from the building plan and specifications<br>5.2 Assess if basic monitoring is to be used with system or plant interrogation capabilities to produce an integrated alarm system for the facility<br>5.3 Determine where alarm systems are monitored and actioned and the personnel responsible<br>5.4 Evaluate what systems are used to connect power and building services output alarms, and the software requirements needed to allow interrogation |
| 6. Produce evaluation document | 6.1 Assess requirements for each building service needed to support the facility, allowing for projection of future network growth and building expansion<br>6.2 Produce an evaluation document on planning requirements for proposed provisioning including identified services to support the building facility |

# Foundation Skills

*This section describes the Foundation Skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.3, 2.4, 4.1, 4.2, 5.1-5.3, 6.1 | • Identifies and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements |
| Writing | 1.2, 1.5, 2.2, 3.1, 5.3, 6.1, 6.2 | • Develops material for a specific audience using clear and detailed language and visuals employing expected forms and conventions |
| Oral Communication | 1.2, 1.5, 5.3 | • Articulates technical information using an appropriate tone and vocabulary for the intended audience |
| Numeracy | 2.2-2.5, 3.1-3.3, 4.3, 5.1, 5.4, 6.1, 6.2 | • Employs mathematical calculations to determine capabilities and limitations of different systems |
| Navigate the world of work | 1.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Get the work done | 1.1-1.5, 2.1, 2.3-2.5, 3.1-3.3, 4.1, 4.3, 5.2-5.4, 6.1 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes |


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| | | |
|---|---|---|
| | | • Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL404 Evaluate the planning requirements for provisioning a telecommunications building facility | ICTNPL4110A Evaluate the planning requirements for provisioning a telecommunications building facility | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL404 Evaluate the planning requirements for provisioning a telecommunications building facility

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- evaluate facilities used for housing network equipment and how they may be used for provisioning
- produce documentation that correctly associates responsibilities to planning, provisioning, maintenance and operation of a building facility
- evaluate planning requirements for telecommunications building facilities
- determine equipment for air conditioning systems and power supplies into building facilities
- determine requirements for energy use, alarm and fire safety services.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline these aspects of network planning:
  - alarm monitoring and hierarchy of responsibility
  - capacity of air conditioning system on a given load
  - different building services supported at a network site
- describe basic monitoring and plant interrogation capabilities
- outline complexities of various levels of alarm as applied to building facilities
- identify general types of facilities within building housing network equipment
- outline services and equipment, including:
  - types of air conditioning


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  - types of fire safety services
  - types of power sources
  - equipment deployments on fire safety services
  - main energy loads associated in a facility
- identify regulatory obligations in relation to fire safety services
- identify software systems needed to allow alarm interrogation (outputs).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- building facilities where planning requirements for provisioning may be conducted
- relevant regulatory and organisational procedures
- documentation that impacts work.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL405 Develop provisioning of telecommunications building works project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop provisioning of building services, including gathering information on the role of power and building services, equipment and infrastructure deployments, building standards, building services capacity and building works programs to evaluate allowable types of building services.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope the project | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards, including work health and safety (WHS) |


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|---|---|
| | processes and procedures<br>1.2 Determine the main role power and building services perform in a network facility and note their effect on network reliability and performance<br>1.3 Assess the provisioning process required to identify, plan and implement power and building services for equipment deployment plans |
| 2. Assess equipment and infrastructure deployments | 2.1 Evaluate available capacity from power and cooling plant to support the effect on floor loading, power and heat load from equipment deployments<br>2.2 Determine different levels of reliability performance standards applicable to specific equipment deployment needs<br>2.3 Develop a process to plan or implement a power and building services upgrade compatible to the network equipment requirements<br>2.4 Assess options available to manage capacity growth in a facility and the effect of potential single points of failure in an end-to-end power and building services system |
| 3. Develop building works programs | 3.1 Develop short- and long-term works programs for building projects that include minor upgrades to large installations<br>3.2 Determine triggers that may require a power and building services capacity or reliability upgrade<br>3.3 Prioritise projects based on customer demand and business needs |
| 4. Assess provisioning of building services | 4.1 Assess the possible effect on current and future use of a building or space when provisioning power and building services<br>4.2 Produce cost estimates including constraints for provisioning of a power and building services upgrade |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.3 | • Identifies and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements |
| Writing | 1.2, 2.3, 3.1, 3.3, 4.2 | • Develops material for a specific audience using clear and detailed language and visuals employing |


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| | | |
|---|---|---|
| | | expected forms and conventions |
| Oral Communication | 1.2, 3,3 | • Articulates technical information using appropriate tone and vocabulary for intended audience |
| Numeracy | 2.1, 2.2, 2.4, 4.1, 4.2 | • Employs mathematical calculations to interpret capabilities and limitations of different systems |
| Navigate the world of work | 1.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Get the work done | 1.1-1.3, 2.1, 2.2, 2.4, 3.1-3.3, 4.1 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL405 Develop provisioning of telecommunications building works project | ICTNPL4111A Develop provisioning of telecommunications building works project | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL405 Develop provisioning of telecommunications building works project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- assess capacity and suitability of available power and building services for telecommunications building works
- develop a process to implement a power and building services upgrade
- develop short- and long-term works projects for equipment and infrastructure deployments
- produce accurate cost estimates for provisioning.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the process to assess capacity and suitability of available power and building services
- outline the following features of a building works project:
  - correlation between building service systems to network equipment requirements
  - different levels of reliability performance standards, applicable to specific equipment deployment needs
  - information required to assess effect on floor loading, power and heat load from equipment deployments
  - main regulatory standards
  - role of power and building services, capacity and standards
- establish the source of budget cost estimates
- define the specific short and long term works programs


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- identify typical issues and challenges that occur in telecommunications building service systems and how these may be addressed
- outline the process for power and building services upgrades.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- building facilities where a telecommunications network project may be conducted
- relevant regulatory, organisational procedures
- documentation impacting work.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL406 Evaluate core network architectures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to assess roles and evaluate benefits of competing core network architectures. Core networks use convergent internet protocol (IP) based technologies with conventional technologies.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider, and prepares them for entry level planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate basic IP network architecture | 1.1 Produce a layout of the topology of an IP network showing network elements and application of the 7-layer open system interconnect (OSI) model<br>1.2 Determine purpose of routers and switches and use of routing protocols |


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| | 1.3 Determine different types of generic resiliency and redundancy that can be applied in network architectures and when they should be applied<br>1.4 Evaluate benefits of IP networks compared to circuit-based networks and the impact on modern telecommunications networks |
| 2. Evaluate synchronous digital hierarchy (SDH) transport architectures | 2.1 Produce a layout of the topology of SDH transport networks showing structure and role of rings in the networks<br>2.2 Determine purpose of SDH switching and its function within the transport architecture<br>2.3 Assess key capacity and distance limitations in SDH networks<br>2.4 Assess resiliency and redundancy techniques that can be used within SDH transport networks<br>2.5 Evaluate compatibility of SDH transport architectures with other transport architectures |
| 3. Evaluate broadband architectures | 3.1 Produce a layout of the topology structure of the asymmetrical digital subscriber line (ADSL) edge network and the hybrid fibre coaxial (HFC) cable edge network in providing broadband access to customer<br>3.2 Determine purpose of point-to-point protocol (PPP) and function of the digital subscriber line access multiplexer (DSLAM), broadband remote access server (BRAS) and layer2 network protocol network server (LNS) in the ADSL network<br>3.3 Assess arrangement of carrier channels connecting the HFC cable customer<br>3.4 Determine the function of the CMTS and the purpose of DOCSIS, and key capabilities of its different versions in the HFC network<br>3.5 Assess resiliency considerations for ADSL and HFC cable network architectures<br>3.6 Evaluate benefits of providing cable broadband access to wireless broadband from a network security aspect |
| 4. Evaluate data architectures | 4.1 Produce a layout of the topology of key structures of a data network showing the IP network and multiprotocol label switching (MPLS) structures<br>4.2 Determine the purpose of internal and external routing protocols in an IP network outlining reasons for the creation of a virtual private network (VPN)<br>4.3 Determine the purpose of label distribution protocol (LDP) in an MPLS network<br>4.4 Assess resiliency and redundancy techniques that can be used |


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| | within data networks<br>4.5 Evaluate compatibility of IP and MPLS networking |
| 5. Evaluate metropolitan ethernet architectures | 5.1 Produce a layout of the topology structure of a metropolitan ethernet network showing optimum siting of the ethernet switch<br>5.2 Determine types and limitations of the varieties of ethernet transmission<br>5.3 Assess scaling limitations of ethernet networks<br>5.4 Assess resiliency and redundancy techniques that can be used within metropolitan ethernet networks<br>5.5 Evaluate the need for creation of virtual local area networks (VLAN) in metropolitan ethernet architecture for improved performance |
| 6. Evaluate voice architectures | 6.1 Produce a layout of the topology of a voice over internet protocol (VoIP) network and a wireless voice network showing the network elements<br>6.2 Determine the function of local exchange and transit exchange switches in the public switched telephone network (PSTN)<br>6.3 Determine the function of a secure broadband connection (SBC) and the purpose of session initiation protocol (SIP) in wireless networking<br>6.4 Assess resiliency and redundancy techniques that can be applied in design of voice networks<br>6.5 Evaluate benefits of VoIP networks compared to circuit based networks and the impact on modern telecommunications networks |
| 7. Evaluate media and content architectures | 7.1 Determine structure, elements and purpose of hosting networks in data centres and a content distribution network<br>7.2 Evaluate the impact of high speed broadband for wide deployment of media and content architectures |
| 8. Prepare evaluation report | 8.1 Assess compatibility and interoperability of competing core network architectures<br>8.2 Prepare an evaluation report outlining core network solutions using emerging technologies |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2-1.4, 2.2-2.4, 3.2, 3.6, 4.2, 4.3, 4.5, 5.2, 6.2-6.5, 7.1, 8.2 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements |
| Writing | 2.1, 4.2, 8.2 | • Develops material for a specific audience using clear and detailed language and visuals employing expected forms and conventions |
| Oral Communication | 1.2, 1.3, 2.2, 3.2, 3.4 | • Articulates technical information using an appropriate tone and vocabulary for the intended audience |
| Numeracy | 1.1, 1.4, 2.3, 2.5, 3.1, 3.4, 4.4, 5.1, 5.3-5.5, 6.1, 6.4, 6.5, 7.2, 8.1 | • Employs mathematical calculations to interpret capabilities and limitations of different systems |
| Get the work done | 1.2-1.4, 2.2-2.5, 3.2-3.6, 4.2-4.5, 5.2-5.5, 6.2-6.5, 7.1, 7.2, 8.1 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNPL406 Evaluate core network architectures | ICTNPL4112A Evaluate core network architectures | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL406 Evaluate core network architectures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine first three layers of the open system interconnect (OSI) model
- determine the role of switches and routers in the core network and different types of routing protocols
- evaluate synchronous digital hierarchy (SDH) switching and transmission and its ability to create resiliency in the network through various redundant configurations
- evaluate benefits, purpose and structure of ADSL networks and other broadband products
- determine and compare data networks with specific reference to internet protocol (IP) and multiprotocol label switching (MPLS)
- evaluate the most important routing protocols of internal and external MPLS and the resilience built into them
- evaluate limitations of an ethernet network and how VLAN can be incorporated in them
- compare various voice protocols
- determine the purpose of various hosting in data centres and media and distribution platforms.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the following features of core network architectures:
  - client business domain, business function and organisation
  - networking technologies
  - theoretical concepts of three or more current industry network development and design methodologies


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  - transmission technologies and protocols
- outline MPLS and IP architectures across a core network environment
- outline current industry-accepted hardware and software products
- identify and describe relevant protocols, such as routing information protocol (RIP), enhanced interior gateway routing protocol (EIGRP), open shortest path first (OSPF), and border gateway protocol (BGP) operations
- identify VLANs and VPN tunnels and describe how they may be implemented in an ethernet/MPLS environment.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- network design documentation
- site-related documentation
- equipment specifications
- live network or training facilities
- organisational guidelines
- networked computers
- networked telecommunications components.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL407 Plan the deployment of core network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan deployment of core network for a telecommunications service provider, including use and consideration of core network deployment data, technology, equipment, capacity management and network management information sources. Core networks use convergent internet protocol (IP) based technologies with conventional technologies.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope the project | 1.1 Prepare for work according to site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.2 Determine the type of core network by accessing and using network |


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| | |
|---|---|
| | information sources<br>1.3 Produce a brief showing how core network architecture components relate to the larger network and their impact on the work<br>1.4 Evaluate equipment type and technologies to be considered to determine availability and compatibility with existing network equipment<br>1.5 Obtain resources and equipment needed for the work according to enterprise procedures and check for correct operation and safety<br>1.6 Assess capacity limitation of platforms in context of the work to ensure maximum network performance<br>1.7 Determine product capability and calculate allowable capacity of the core network to allow for network growth |
| 2. Produce deployment plan for a core network | 2.1 Assess demand for the core network using key geographic, demographic, forecast and bandwidth data<br>2.2 Identify key parameters of the core network to be measured for capacity management<br>2.3 Produce a preliminary deployment plan for the core network using architectural principles and assessed demand to maintain integrity of the core network<br>2.4 Assess additional planning requirements for voice over internet protocol (VoIP) and wireless voice networks from voice networks, and for hosting and content distribution networks from media and content networks<br>2.5 Create a financial business case for deployment of the core network based on assessed demand to justify a return on investment (RoI) and operational costs<br>2.6 Discuss unexpected situations with appropriate personnel, with consideration to job specifications, safety and enterprise procedures to establish a solution |
| 3. Complete work and report its impact on network performance | 3.1 Produce final deployment plan including recommendations agreed with customer<br>3.2 Provide a report on network monitoring techniques used to manage the network to ensure the network is performing at optimum level |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1-1.3, 1.5, 2.1-2.4 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements |
| Writing | 1.3, 2.6, 3.1, 3.2 | • Develops material for a specific audience using clear and detailed language and visuals employing expected forms and conventions |
| Oral Communication | 2.6, 3.1, 3.2 | • Articulates technical information using an appropriate tone and vocabulary for the intended audience<br>• Listens and responds to different viewpoints and elicits opinions of others through considered questioning |
| Numeracy | 1.6, 1.7, 2.1, 2.3, 2.4 | • Employs mathematical calculations to interpret capabilities and limitations of different systems and future configurations |
| Navigate the world of work | 1.1, 1.5, 2.6 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 2.6 | • Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers<br>• Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts |
| Get the work done | 1.1, 1.3-1.7, 2.1, 2.2, 2.4, 2.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL407 Plan the deployment of core | ICTNPL4113A Plan the deployment of | Updated to meet standards for Training | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| network | core network | Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL407 Plan the deployment of core network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- gather data from information sources efficiently and evaluate how the data relates to the core network
- source major equipment and technologies accurately to be used in a core network and detail their compatibilities
- prepare a business case for deployment of a core network
- produce a deployment plan for a core network including monitoring techniques and recommendations for the customer.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify multiprotocol label switching (MPLS) and internet protocol (IP) architectures across a core network environment
- outline different protocols such as routing information protocol (RIP), enhanced interior gateway routing protocol (EIGRP), open shortest path first (OSPF), and border gateway protocol (BGP) operations
- identify virtual local area networks (VLAN) and virtual private network (VPN) tunnels and explain how they are implemented in an ethernet and MPLS environment
- outline the following features of core network architectures:
  - client business domain, business function and organisation
  - current industry-accepted hardware and software products
  - networking technologies incorporating substantial depth in some areas
  - transmission technologies and protocols


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- theoretical concepts of three or more current industry network development and design methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- network design documentation
- other site-related documentation
- equipment specifications
- live network or training facilities
- organisational guidelines
- networked computers
- networked telecommunications components.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL408 Produce planning specifications for end-to-end service delivery

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to gather information on the types of end-to-end services and product delivery and evaluate their capability to meet present and future demands.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope the project | 1.1 Prepare for given work according to site specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.2 Determine types of currently deployed end-to-end service |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | delivery networks by accessing and using network information sources<br>1.3 Produce a brief on how end-to-end service delivery network elements relate to the larger network and their impact on the work |
| 2. Assess capacity and capability of a specific project | 2.1 Determine the nature, quantity, architecture and condition of existing end-to-end service delivery network elements and attributes that contribute to determining planning specifications<br>2.2 Assess capacity and capability limitations of an existing end-to-end service delivery network project by accessing network information sources and conducting site visits<br>2.3 Assess capacity and capability limitations of a building facility project that contribute to determining planning specifications |
| 3. Assess capacity and capability of product and service delivery | 3.1 Determine types of currently deployed products and services by accessing sales and marketing information databases<br>3.2 Produce a brief evaluating capability and technology of current product and services to meet demands and their relationship to the larger network<br>3.3 Evaluate emerging technologies that contribute to determining planning specifications for demands of future products and services |
| 4. Produce planning briefs | 4.1 Produce a brief on the planning specifications of an end-to-end service delivery network and a building facility project for the planning department to determine current and future network demands<br>4.2 Produce a brief on products and services planning requirements for sales and marketing to determine provisioning of future demands |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 2.3, 3.3 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements |


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| | | |
|---|---|---|
| | | • Evaluates complex text to determine legislative, regulatory and project requirements |
| Writing | 1.3, 2.1, 2.2, 3.2, 4.1, 4.2 | • Develops material for a specific audience using clear and detailed language employing expected forms and conventions |
| Oral Communication | 2.1, 2.2, 3.2, 4.1, 4.2 | • Articulates technical information using appropriate tone and vocabulary for the intended audience |
| Numeracy | 2.3, 3.1 | • Employs mathematical calculations to compare capabilities and limitations of different systems and future configurations |
| Navigate the world of work | 1.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Get the work done | 1.1, 1.2, 2.1-2.3, 3.1, 3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, search and enter data and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL408 Produce | ICTNPL4114A | Updated to meet | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| planning specifications for end-to-end service delivery | Produce planning specifications for end-to-end service delivery | standards for Training Packages<br><br>Clarified performance criteria | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL408 Produce planning specifications for end-to-end service delivery

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- access relevant network information databases to determine the types of end-to-end services and products
- conduct site evaluation assessment accurately
- evaluate capacity and capability of end-to-end services to meet current and future demands
- assess limitations of current end-to-end services and produce specifications to meet future demands
- assess limitations of current building facility and services and produce specifications to meet future demands
- summarise and produce planning briefs to network, sales and marketing planning sections.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify emerging technologies, trends and products available overseas that will be in demand in the Australian market
- describe information required to prepare and review limits of:
  - broadband networks
  - data networks
  - facilities and environmental issues
  - fixed access transmission network
  - media and content


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  - regional and metropolitan network
  - voice networks
  - wireless network
- outline the following aspects of network planning:
  - basic network design including routing and redundancy
  - levels of reliability performance standards applicable to specific equipment deployment needs
  - standards and regulations
- describe the distribution structure of networks including:
  - access
  - backbone
  - edge
- outline current equipment and product types to meet future service obligations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- a network planning area with systems and deployment rules and standards
- end-to-end services and products databases
- relevant workplace procedures
- product and manufacturing specifications
- codes of practice and standards
- manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to assess the impact of deregulation, competition, economic conditions, regulations and legislation on enterprise-specific policies and procedures and its subsequent incorporation into the planning process.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate economic and political influences | 1.1 Research the impact of deregulation and competition in the telecommunications industry on planning priorities of competing service providers in Australia due to the different federal government policies |


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| | |
|---|---|
| | 1.2 Assess the influence of local and international economic conditions on the growth of the industry that would impact on the planning justification for a new network<br><br>1.3 Evaluate and produce a report on the economic and political influences on public and commercial enterprises providing services in a competitive telecommunications market of fast changing technologies |
| 2. Evaluate impact of key regulations and legislation | 2.1 Access all legislation governing carriers in Australia to determine the rights of carriers and service providers in installing facilities under Commonwealth legislation<br><br>2.2 Use the Telecommunications Industry Regulatory Accounting Framework (RAF) to determine the method used by the Australian Competition and Consumer Commission (ACCC) in enforcing competitive provisions between service providers<br><br>2.3 Evaluate the impact on planning of services by the obligation placed by Universal Service Obligation (USO) on service providers to ensure services are reasonably accessible to all people in Australia on an equitable basis<br><br>2.4 Produce a summary report evaluating the impact of the legislation on the planning process of access networks and plan strategies to facilitate network planning |
| 3. Apply internal financial compliance | 3.1 Use an enterprise-specific investment management system (IMS) to create on the spot reports for performance measurement of an existing planning project against the business plan<br><br>3.2 Produce a report of planning work activities incorporating enterprise-specific policies and procedures underpinned by regulatory and compliance obligations |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2-1.3, 2.1-2.4, 3.1, 3.2 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements<br>• Evaluates complex text to determine legislative, regulatory and project requirements |


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| | | |
|---|---|---|
| Writing | 1.2, 1.3, 2.2-2.4, 3.1, 3.2 | • Develops complex material for a specific audience using clear and detailed language employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information and specialised and cohesive language |
| Navigate the world of work | 1.1, 1.2, 2.1, 2.2, 3.2 | • Ensures knowledge of legislative requirements and products is kept up to date in order to provide accurate information<br>• Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Contributes to continuous improvement of current work practices by applying basic principles of analytical and lateral thinking<br>• Uses familiar digital technologies and systems to access information, search and enter data and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry | ICTNPL4150A Apply knowledge of regulation and legislation for the telecommunications industry | Updated to meet standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- produce a comprehensive evaluation report on economic and political influences on the telecommunications industry in Australia
- produce a comprehensive evaluation report on the impact of key regulation and legislation on the telecommunications industry
- produce an accurate summary report evaluating the impact of the legislation on the planning process of access networks.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the impact of deregulation on the telecommunications industry
- outline the investment management system
- identify and describe the purpose and implementation of relevant telecommunications legislation
- identify and describe the impact of market forces on telecommunications
- outline procedures for developing plans for telecommunications systems
- outline the telecommunications industry, framework and networks.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- relevant legislation
- planning processes
- Telecommunications Industry Regulatory Accounting Framework (RAF) planning tools
- enterprise-specific investment management system (IMS)
- relevant databases
- licensing requirements
- other related procedures.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL410 Plan the telecommunications access network for an estate

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan access networks delivering voice, data and video services to customers, and involves the collation and evaluation of data relating to network shortfalls and projected usage, leading to the development of solutions and ultimately network plans for an estate.

It applies to individuals with a range of telecommunications skills and extensive knowledge of core and access network capabilities of the service provider. It prepares individuals for entry into planning and design for network additions and implementations to accommodate network growth and new technologies within the industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather data on network usage | 1.1 Determine the type of access network by accessing and using |


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| | |
|---|---|
| for planning activity | network information sources<br>1.2 Collect planning data using network information sources to determine network trends<br>1.3 Evaluate new and emerging technologies to determine availability and compatibility with existing network equipment<br>1.4 Access relevant legislation and associated regulatory and operational codes |
| 2. Evaluate need for network growth | 2.1 Evaluate capacity of the existing network to absorb planned growth<br>2.2 Identify need and likely timing of necessary network increments<br>2.3 Assess new or alternate technologies to rectify network shortfall<br>2.4 Identify barriers relating to planned network extensions impacting planning the network realisation<br>2.5 Assess the impact of not meeting network shortfall needs and long term ramifications on the business |
| 3. Develop solution and network plan to address network shortfall | 3.1 Review overall planning parameters prior to commencement of the planning process to produce forecasts for specific network area and cost-benefit analysis<br>3.2 Establish the optimum solution to address network shortfall with justification for the proposal<br>3.3 Determine project details and ascertain preliminary costing and resource requirements<br>3.4 Determine availability of required technology or technology features within the specified timeframe<br>3.5 Produce a specific network plan with solution and recommendations for anticipated projects for approval according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.4, 2.1-2.5, 3.1, 3.3, 3.4 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements<br>• Evaluates complex text to determine legislative, |


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| | | |
|---|---|---|
| | | regulatory and project requirements |
| Writing | 1.3, 2.3, 2.5, 3.2, 3.3, 3.5 | • Develops complex material for a specific audience using clear and detailed language and visuals while employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information and specialised and cohesive language |
| Oral Communication | 2.3, 2.4, 3.2-3.5 | • Clearly articulates requirements using language appropriate to audience and environment and participates in a verbal exchange of ideas and solutions |
| Numeracy | 1.2, 2.1, 2.5, 3.1, 3.3, 3.4 | • Interprets numerical information and applies basic mathematical calculations relating to time durations and budgetary information |
| Navigate the world of work | 1.4 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Get the work done | 1.2, 1.3, 2.1-2.5, 3.1, 3.2, 3.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution<br>• Contributes to continuous improvement of current work practices by applying basic principles of analytical and lateral thinking |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL410 Plan the telecommunications access network for an estate | ICTNPL4151A Plan the telecommunications access network for an estate | Updated to meet standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL410 Plan the telecommunications access network for an estate

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- implement planning processes including associated monitoring and control mechanisms
- develop effective solutions to address access network shortfalls that satisfy customer and enterprise needs
- develop network plans with consideration of appropriate technological developments and product implementation
- produce accurate forecasts for a specific network including cost-benefit analysis.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and summarise legislation affecting the telecommunications industry
- outline the features of an access network and the influence on:
  - cost estimates and operating budgets according to enterprise policy
  - telecommunications industry in Australia
- describe the theory of project management and associated databases and project management software programs
- describe the process and features of planning for an access network on an estate
- determine the economic and political influences on public and commercial enterprises
- describe the financial authorities and delegations associated with an access network plan
- define the influence of the local and international economic conditions on the telecommunications industry
- describe the typical challenges and limits facing technology today and the consideration of future needs


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- describe the process of collating and writing project briefs, reports and project charters.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- a network planning area systems and deployment
- rules and standards
- relevant databases
- licensing requirements and other site related procedures.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL411 Apply compliance requirements to telecommunications work

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to satisfy the regulatory environment in the planning, design and installation of telecommunications equipment and infrastructure.

It applies to individuals with the organisational, economic and regulation skills to enable them to plan and design the access network infrastructure of private and/or carrier service providers. These individuals may be responsible for small projects or parts of larger projects and for the operation and engineering of the enterprise and telecommunications network in general.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate design for activities subject to standards, regulations, codes of practice and | 1.1 Research the range of activities subject to regulations, standards, legislation and codes of practice for their design<br>1.2 Examine organisational procedures developed to deal with these requirements. |


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| | |
|---|---|
| legislation | 1.3 Examine construction requirements for each activity and determine any applicable regulations, codes or practices,<br>1.4 Access knowledge bases, authorities and records for areas and activities covered by these requirements,<br>1.5 Examine public records for planning restrictions that may impact the design and construction of a telecommunications network |
| 2. Evaluate design for activities that require approval to enter land or premises | 2.1 Determine the rights of entry and notifications necessary to enter property for the purpose of designing telecommunications facilities<br>2.2 Examine what courses of action are available in case of dispute<br>2.3 Access legislation governing carriers and service providers in Australia to determine the rights of carriers and service providers in installing facilities under Commonwealth legislation<br>2.4 Determine activities that must be undertaken during survey and construction to meet the various requirements |
| 3. Examine processes necessary to facilitate completion of a design to meet the relevant regulatory environments | 3.1 Discuss with governing authorities, consultants and other industry experts the steps necessary to meet the legislative requirements of a designer and constructor of the network infrastructure design<br>3.2 Initiate studies and information gathering activities to develop a design which is compliant to the requirements<br>3.3 Produce a report of work activities incorporating enterprise-specific policies and procedures underpinned by regulatory and compliance obligations<br>3.4 Compare the newly developed solutions to meet regulatory environments with financial plans to meet budgetary requirements for the design project |
| 4. Complete legally binding agreements and document all procedures | 4.1 Gather all reports and studies to support the design and construction activities and incorporate with final design<br>4.2 Diarise all activities for evidence of compliance with requirements in case of future actions<br>4.3 Ask relevant parties to sign legally binding documentation to fulfil obligations to access land or premises as required<br>4.4 Examine what alternative courses of action are available in case of dispute prior to or after an agreement is signed by all parties |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.5, 2.1, 2.3, 3.2, 4.1, 4.4 | • Selects, synthesises and critically evaluates complex and often technically complex texts, and integrates prior knowledge to improve understanding |
| Writing | 1.1, 3.2, 3.3, 4.1, 4.2 | • Integrates information and ideas from a range of sources, and documents these in a form appropriate to audience and context |
| Oral Communication | 3.1, 3.2, 4.3 | • Articulates clearly using specific and relevant language suitable to audience to convey requirements and listening and questioning techniques to confirm understanding |
| Numeracy | 1.1, 1.3, 1.4, 3.1, 3.2, 3.4, 4.1, 4.2 | • Collects, organises, interprets and communicates mathematical concepts embedded in data and information |
| Navigate the world of work | 1.1-1.5, 2.1, 2.3, | • Recognises and responds appropriately within a complex regulatory environment and identifies issues that may have legal implications<br>• Independently accesses a range of resources to acquire knowledge |
| Interact with others | 2.2, 3.1, 4.3, 4.4 | • Actively seeks a range of perspectives as part of work role<br>• Anticipates possible sources of conflict, develops conflict resolution strategies and reflects on effectiveness of dispute resolution processes and actions. |
| Get the work done | 1.1-1.5, 2.1-2.4, 3.1-3.4, 4.1-4.4 | • Researches, plans, and manages complex tasks taking into account current and new technology, facilities and features when developing options<br>• Analyses the impact of financial, regulatory, policy, procedures and other factors in planning, and utilises sophisticated problem-solving skills to assess conditions |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNPL411 Apply compliance requirements to telecommunications work | ICTNPL4247A Apply compliance requirements to telecommunications work | Updated to meet standards for Training Package | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL411 Apply compliance requirements to telecommunications work

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- produce a detailed report from a design, identifying acts and codes of practice for each aspect of a project
- produce a report detailing common construction practices to mitigate the environmental impact of the project
- produce a summary report detailing a designer's and constructor's obligations regarding land access under the telecommunications act and code of practice.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise regulations, standards, legislation and codes of practice relevant to the telecommunications industry
- describe the impact of the following on telecommunications systems and installations:
  - Environmental Protection Authority and legislation
  - waterways and their responsibilities
  - national, state and council regulations
  - National Parks and Wildlife acts
  - ports authority
  - rail authority and their requirements
  - power distribution authority and requirements
  - roads authority
  - footpath allocations


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- describe technical compliance requirements for the following:
  - separations and depth of cover
  - earth potential rise (EPR)
  - low frequency induction (LFI)
- describe the framework for the telecommunications industry including its various networks

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- relevant legislation
- planning processes and telecommunications industry Regulatory Accounting Framework (RAF)
- planning tools
- enterprise-specific investment management system (IMS)
- relevant databases
- licensing requirements
- relevant procedures.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL501 Develop planning strategies for core network design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop specifications for core networks to be used by network designers.

It applies to technical officers or engineers from private and public organisations working in a network planning team, who combine technical skills with broader organisational skills to plan the various core network technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate core network requirements and infrastructure capability | 1.1 Estimate likely growth in core network use by analysing forecasting market intelligence data on customer demand<br>1.2 Analyse current traffic and growth trends in edge and backbone networks to forecast traffic growth and capacity demand for the core network<br>1.3 Compare available capacity, capability and parameters of current core |


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| | |
|---|---|
| | infrastructure deployment against researched demand data to identify infrastructure shortfalls<br>1.4 Quantify network requirements for any upgrades or network augmentation<br>1.5 Determine relevant standards and regulatory requirements to be considered in core network planning<br>1.6 Formulate justification to proceed by analysing business requirements and benefits to the business |
| 2. Prepare strategic plan and scoping document | 2.1 Determine appropriate technologies and network elements for core network deployment, including new or alternative solutions to meet business requirements<br>2.2 Select commercially viable technology compatible with the existing network to deploy with existing and future network<br>2.3 Prepare a planning document, and supporting documentation with recommendations, that complies with deployment standards and regulatory requirements<br>2.4 Provide estimated costs and schedule for a planning solution |
| 3. Produce project brief | 3.1 Evaluate and summarise project scope into required briefing format with supporting documentation, that complies with core network deployment rules<br>3.2 Plan project delivery to suit business requirements and practical limitations<br>3.3 Produce core networks specifications with approvals and present to the design section to produce detailed design specifications |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.3, 1.5, 1.6, 2.1-2.3 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements<br>• Evaluates complex text to determine legislative, regulatory and project requirements |
| Writing | 1.1-1.3, 1.6, 2.3, 2.4, 3.1-3.3 | • Develops complex material for a specific |


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| | | |
|---|---|---|
| | | audience using clear and detailed language and visuals while employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information and specialised and cohesive language |
| Oral Communication | 1.5, 2.3 | • Clearly articulates requirements using language appropriate to audience and environment and participates in a verbal exchange of ideas and solutions |
| Numeracy | 1.1-1.4, 1.6, 2.1, 2.2, 2.4 | • Interprets numerical information and applies mathematical calculations relating to time durations and budgetary information<br>• Analyses numerical information to measure usage and calculates metric measurements, quantities/ratios and financial data using appropriate tools |
| Navigate the world of work | 1.5, 2.3 | • Ensures knowledge of legislative requirements and products is kept up-to-date to provide accurate information<br>• Takes full responsibility for following policies, procedures and legislative requirements, and identifies organisational implications of new legislation or regulations |
| Interact with others | 3.3 | • Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.1, 1.2, 1.5, 1.6, 2.1, 2.2, 2.4, 3.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules and reviews and changes them to meet new demands and priorities<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables, including outcomes of previous decisions<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNPL501 Develop planning strategies for core network design | ICTNPL5071A Develop planning strategies for core network design | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL501 Develop planning strategies for core network design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- use data to accurately interpret growth patterns and develop options for core network designs which satisfy customer and enterprise financial goals
- develop a network plan which is current with emerging technologies
- produce specifications and costing
- document a project brief with accompanying project implementation documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the capability and limitations of the various core network technologies for present and future needs
- outline the following specific features of core network design:
  - elements and architecture of core networks
  - limits of a core network
  - typical core network technologies
- identify and describe elements and architectures of the various core technologies
- explain key technologies that make up the core network
- outline the following general features of core network design:
  - distribution structure of networks including backbone, core and edge
  - levels of reliability performance standards applicable to specific equipment deployment needs
  - network design including routing and redundancy


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- standards and regulations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- computer aided design (CAD)
- computer networks
- data for network planning
- network equipment deployment plans
- planning models
- relevant standards and regulations.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL502 Develop planning strategies for access network design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop specifications for access networks to be used by network designers, and involves gathering information on anticipated demand and business requirements for the access network to determine design criteria to meet current and future needs.

It applies to individuals with a high level of specialist technical skills and knowledge in telecommunications and IT networks using internet protocol (IP) systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate access network requirements and infrastructure capability | 1.1 Estimate likely growth in access network use by analysing forecasting market intelligence data on customer demand<br>1.2 Compare available capacity and capability of current access infrastructure deployment against researched demand data to identify infrastructure and product shortfalls |


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| | |
|---|---|
| | 1.3 Quantify network requirements for upgrades or network augmentation to increase capacity and capability of existing network<br>1.4 Determine relevant standards, business and regulatory requirements to be considered in access network planning<br>1.5 Formulate justification to proceed by analysing business requirements and benefits to the business |
| 2. Prepare strategic plan and scoping document | 2.1 Determine appropriate technologies, network elements and equipment for access network deployment, including new or alternative solutions to meet business requirements<br>2.2 Select commercially viable technology compatible with the existing network to deploy with existing and future network<br>2.3 Prepare planning document and supporting documentation with recommendations that complies with deployment standards and regulatory requirements<br>2.4 Provide estimated costs and schedule for a planning solution |
| 3. Produce project brief | 3.1 Evaluate and summarise project scope into the required briefing format with relevant supporting documentation for a project brief that complies with access network deployment rules<br>3.2 Plan project delivery to suit business requirements and practical limitations<br>3.3 Produce access networks specifications with approvals and present to the design section to produce detailed design specifications |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Learning | 2.1 | • Employs a range of approaches and investigative techniques to consider present and future needs of the network and to overcome obstacles |
| Reading | 1.1, 1.2, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements<br>• Evaluates complex text to determine legislative, regulatory and project requirements |


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| | | |
|---|---|---|
| Writing | 1.2, 1.5, 2.3, 3.1-3.3 | • Develops complex material for a specific audience using clear and detailed language and visuals while employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information and specialised and cohesive language |
| Oral Communication | 1.4, 2.2, 3.1, 3.3 | • Clearly articulates requirements using language appropriate to audience and environment, and participates in a verbal exchange of ideas and solutions |
| Numeracy | 1.1-1.3, 1.5, 2.4 | • Interprets numerical information and applies mathematical calculations relating to time durations and budgetary information<br>• Analyses numerical information to measure usage and calculates metric measurements, quantities/ratios and financial data using appropriate tools |
| Navigate the world of work | 1.4, 2.3 | • Ensures knowledge of legislative requirements and products is kept up-to-date to provide accurate information<br>• Takes full responsibility for following policies, procedures and legislative requirements and identifies organisational implications of new legislation or regulation |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 2.1-2.4, 3.1, 3.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause of a problem rather than the symptom<br>• Applies systematic and analytical decision making processes for complex and non-routine situations |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNPL502 Develop planning strategies for access network design | ICTNPL5096A Develop planning strategies for access network design | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL502 Develop planning strategies for access network design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- interpret growth patterns using available data
- develop options for access network design which satisfy customer and enterprise financial goals
- develop a clearly documented network plan, within specifications and including merging technological development and product implementation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain capability and limitations of the various access network technologies
- identify current equipment to meet future service obligations
- outline the role of the following specific features of network planning:
  - broadband networks
  - data networks
  - elements and architecture of the various access networks and their technologies
  - facilities and environmental issues
  - limits of a fixed access transmission network
  - media and content
  - regional and metropolitan network
  - typical access network technologies
  - voice networks
  - wireless network


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- explain distribution structure of networks, including backbone, access and edge
- identify key technologies that make up the access network
- outline the following general features of network planning:
  - levels of reliability performance standards, applicable to specific equipment deployment needs
  - network design including routing and redundancy
  - standards and regulations
- describe typical problems and challenges with the capability and limitations of the various access networks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- computer aided design (CAD)
- computer networks
- data for network planning
- network equipment deployment plans
- planning models
- relevant standards and regulations.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL503 Apply service measures and demand forecasting to products and services planning

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to analyse customer bases and market demands, and use forecasting tools to predict customer demands for new products and services.

It applies to technical staff moving into planning and management positions with a high level of specialist technical skills and knowledge in telecommunications and IT networks using internet protocol (IP) systems for small projects, or parts of larger projects.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse customer base | 1.1 Establish reasons for forecasting in network planning, and factors that influence forecasting<br>1.2 Collate data from appropriate organisations involved in planning initiatives for planning delivery of products and services |


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| | |
|---|---|
| | 1.3 Establish market segmentation to improve marketing effectiveness on new technology adoption<br>1.4 Analyse market segments of customers, based on geography and demographics, for a new service or product and predict adoption rates |
| 2. Evaluate current utilisation | 2.1 Evaluate current service usage of the network and determine current traffic load<br>2.2 Evaluate current network occupancy and determine any spare capacity |
| 3. Predict future customer base | 3.1 Evaluate expected customer growth and segment mix in a defined geographical area, and assess impact on network planning<br>3.2 Use a forecasting model and predict customer demand for new technology products and services |
| 4. Use property market and development data to produce plans | 4.1 Develop strategic plans on infrastructure planning using planning authority data for development and redevelopments<br>4.2 Produce a plan for future development projects using property market data |
| 5. Predict future service requirements | 5.1 Create a customer service plan to maintain valuable customer relationships and strengthen business<br>5.2 Measure customer service results using key factors that provide an indicator for customer service quality<br>5.3 Use forecasting tools to predict future service demand and requirements for emerging technology services of Next Generation Networks (NGN) |
| 6. Produce network forecast and documentation | 6.1 Produce geographically-based network growth forecasts utilising change in customer base, changes to property market and future service predications<br>6.2 Produce and present documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1, 2.2, 3.1, 4.1, 5.1, 5.2, | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and |


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| | | |
|---|---|---|
| | 6.1 | specific requirements<br>• Evaluates complex text to determine legislative, regulatory and project requirements |
| Writing | 1.2-1.4, 4.1, 4.2, 5.1, 6.1, 6.2 | • Develops complex material for a specific audience using clear and detailed language and visuals while employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information and specialised and cohesive language |
| Oral Communication | 1.1-1.4, 4.1, 5.1, 6.2 | • Clearly articulates requirements using language appropriate to audience and environment and participates in a verbal exchange of ideas and solutions |
| Numeracy | 1.2, 1.4, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2, 5.2, 5.3 | • Interprets numerical information and applies appropriate formula relating to time durations, budgetary information and different data<br>• Analyses numerical information to measure present and predicted usage and calculates metric measurements, quantities/ratios and financial data using appropriate tools |
| Interact with others | 5.1, 5.2 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.1, 1.3, 1.4, 2.1, 2.2, 4.1, 5.1, 5.3, 6.1 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others taking into account capabilities, efficiencies and effectiveness<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables, including outcomes of previous decisions |


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| | | |
|---|---|---|
| | | • Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Investigates new and innovative ideas as a means to continuously improve, work practices and processes through consultation, formal and analytical thinking |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL503 Apply service measures and demand forecasting to products and services planning | ICTNPL5101A Apply service measures and demand forecasting to products and services planning | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL503 Apply service measures and demand forecasting to products and services planning

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- interpret accurately the growth patterns and development options which satisfy customer and enterprise financial goals
- predict future customer base and service requirements
- produce comprehensive network growth forecasts, utilising changes to customer base, property market and future service predictions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain different levels of reliability performance standards applicable to specific equipment deployment needs
- identify and explain emerging technologies that affect this industry
- identify factors that can affect forecasting demand
- identify and apply forecasting models and forecasting tools
- explain market segmentations
- explain network designs and new products and services
- explain next generation network (NGN) services
- identify planning authorities
- describe planning initiatives
- describe the process to prepare and review customer bases
- identify different service measures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- data from organisations involved in planning initiatives
- a range of software currently used in industry
- relevant regulations
- specifications that impact service measures and forecasting activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL504 Develop planning strategies for building environment design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop planning strategies for the design phase to meet present and future demands, and involves gathering information on network capability, anticipated network deployment demand and scoping design requirements to produce building planning specifications.

It applies to individuals with a high level of specialist technical skills and knowledge in telecommunications and IT networks using internet protocol (IP) systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate building environment requirements | 1.1 Utilise network equipment deployment plans to convert network equipment specifications into building requirements data<br>1.2 Determine planned and forecast network equipment deployment locations and quantities to prioritise tasks<br>1.3 Formulate justification to proceed by analysing business |


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| | |
|---|---|
| | requirements and benefits to the business<br>1.4 Analyse current building capacities or capabilities against planned deployment data to determine building environment shortfalls or additional needs<br>1.5 Determine minimum needs required to address identified building services shortfalls, upgrades or changes<br>1.6 Identify relevant standards, business and regulatory requirements that are essential for building plan compliance |
| 2. Scope building design requirements | 2.1 Quantify building requirements from known needs to determine if any standard deliverables can be used<br>2.2 Assess if requirements can be met using new or alternative solutions<br>2.3 Provide estimated costs and schedule to determine a planning solution<br>2.4 Prepare a scoping document and supporting documentation with recommendations that complies with deployment standards and regulatory requirements |
| 3. Produce project brief | 3.1 Prepare a project scope in required briefing format to present to the design section<br>3.2 Plan project delivery to meet any business timing and funding constraints<br>3.3 Produce building planning specifications with approvals and present to the building design section to be used for detailed design or construction specifications |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.5, 1.6, 2.2, 2.4 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements<br>• Evaluates complex text to determine legislative, regulatory and project requirements |
| Writing | 1.3, 2.4, 3.1-3.3 | • Develops complex material for a specific audience |


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| | | |
|---|---|---|
| | | using clear and detailed language and visuals while employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information and specialised and cohesive language |
| Oral Communication | 1.3, 2.2, 3.3 | • Clearly articulates requirements using language appropriate to audience and environment, and participates in a verbal exchange of ideas and solutions |
| Numeracy | 1.1, 1.3, 1.4, 2.1, 2.3, 2.4, 3.1-3.3 | • Interprets numerical information and applies appropriate mathematical formulas to calculate different data<br>• Analyses numerical information to measure present and predicted usage and calculates metric measurements, quantities/ratios and financial data using appropriate tools |
| Navigate the world of work | 1.6, 2.4, 3.1 | • Takes full responsibility for following policies, procedures and legislative requirements and identifies organisational implications of new legislation or regulation<br>• Identifies and resolves key business issues, processes and practices that may have legal implications<br>• Ensures knowledge of legislative requirements and products is kept up-to-date to provide accurate information |
| Interact with others | 3.1, 3.3 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.2-1.5, 2.1-2.4, 3.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables, including outcomes of previous decisions<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNPL504 Develop planning strategies for building environment design | ICTNPL5154A Develop planning strategies for building environment design | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL504 Develop planning strategies for building environment design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- assess building environment requirements to provide network capability for current and forecast demand including consideration of merging technological development and product implementation
- prepare and present a detailed scoping document with solutions, costing and project scheduling recommendations
- meet forecast network capability needs and regulatory requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and discuss capability and limitations of the various network technologies to meet present and future needs
- describe different costing and funding models
- outline the process to review limits of a building's facilities and services
- identify network equipment requirements and use to derive building's specifications
- identify network building design
- identify and apply relevant regulations and standards
- discuss typical problems and challenges that describe the limitations of the various building projects work
- identify ways to remain abreast of current building requirements to meet future service obligations.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- computer aided design (CAD)
- computer networks
- data for network planning
- network equipment deployment plans
- planning models
- relevant standards and regulations.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL601 Plan the development and growth of the telecommunications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to analyse and evaluate forecast data to plan development and growth of the telecommunications network.

It applies to individuals with a high level of specialist technical skills and knowledge in optical telecommunications and IT networks using internet protocol (IP) systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather data related to existing and projected network usage | 1.1 Access market intelligence for information on customer demand on the network and likely growth in network use<br>1.2 Obtain demand data to plan for potential network traffic quantity and flow<br>1.3 Access information relating to new and emerging technologies, facilities and features, and their specific applications |


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| | |
|---|---|
| | 1.4 Access relevant legislation and associated operational codes and analyse impact on planning processes |
| 2. Assess need for network growth | 2.1 Evaluate capacity of existing network to absorb planned growth using network capacity usage and traffic measurements<br>2.2 Plan likely timing of necessary network increments to minimise impact on the network<br>2.3 Assess use of new or alternate technologies to meet forecast growth |
| 3. Develop network plans | 3.1 Assess overall planning parameters including approved business plan prior to commencement of planning process<br>3.2 Analyse gathered information and produce a project plan with specifications to meet network growth<br>3.3 Conduct appropriate investment study including cost benefit analysis, where required, with consideration of barriers that may affect project plan<br>3.4 Produce a network plan with detailed specifications and seek approval according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.4, 2.3, 3.1, 3.3 | • Analyses and evaluates complex written and visual text in specialised workplace documentation to determine key information and specific requirements<br>• Evaluates complex text to determine legislative, regulatory and project requirements, and their potential impact on the project |
| Writing | 3.1, 3.2, 3.4 | • Develops complex material for a specific audience using clear and detailed language and visuals while employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information and specialised and cohesive language |
| Oral | 1.1, 1.3 | • Clearly articulates requirements using language appropriate to audience and environment, and |


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| | | |
|---|---|---|
| Communication | | participates in a verbal exchange of ideas and solutions |
| Numeracy | 2.1, 2.2, 3.1, 3.2, 3.4 | • Interprets numerical information and applies appropriate mathematical formulas to calculate different future possibilities<br>• Analyses data to measure present and predicted usage and assess different scenarios |
| Navigate the world of work | 1.4 | • Ensures knowledge of legislative requirements and products is kept up-to-date to provide accurate information<br>• Develops and implements strategies that ensures organisational policies, procedures and regulatory requirements are being met |
| Get the work done | 1.1-1.4, 2.1, 2.3, 3.1-3.3 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Makes high-impact decisions in a complex and diverse environment, using input from a range of sources<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques experience and knowledge to focus in on the root cause<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL601 Plan the development and growth of the telecommunications network | ICTNPL6029A Plan the development and growth of the telecommunications network | Updated to meet standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL601 Plan the development and growth of the telecommunications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- gather comprehensive data related to existing and projected network usage
- accurately assess need for network growth
- develop detailed network plans.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the following general processes of network growth:
  - cost estimates and operating budgets according to enterprise policy
  - project management theory, associated databases and project management software programs
  - telecommunications industry in Australia
- outline economic and political influences on public and commercial enterprises
- outline economic and political influences on public and commercial enterprises
- identify relevant financial authorities and delegations
- outline the influence of local and international economic conditions on the telecommunications industry
- describe typical challenges and limits facing technology today and consideration of future needs
- identify relevant legislation
- explain the process for collating and writing project briefs, reports and project charters.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- data from organisations involved in planning initiatives
- a range of software currently used in industry
- relevant regulations
- specifications that impact forecasting activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL602 Forecast service demand

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop forecasts for demand for telecommunications services and includes assessing activities that may change service demand and capacity requirements.

It applies to individuals with a high level of specialist technical skills and knowledge in optical telecommunications and IT networks using internet protocol (IP) systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network Planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather forecast intelligence | 1.1. Access market intelligence for information on customer demand on the network and likely growth in network use<br>1.2 Obtain demand data to assess potential network traffic quantity and flow<br>1.3 Access information relating to new and emerging technologies, facilities and features, and their specific applications to evaluate market trends in new technology implementation |


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| | |
|---|---|
| | 1.4 Obtain data from network analysis to determine the state of the existing network using customer complaint reports and network fault incidence rate |
| 2. Produce forecast service demand information | 2.1 Analyse and process all collated data and prepare to the format required for forecasting activity<br>2.2 Select and configure a suitable software forecasting tool to process collated data<br>2.3 Evaluate collated data to generate forecasts of service demand using information in reference to new developments<br>2.4 Compile forecast figures and report according to enterprise policy |
| 3. Review forecasts and update systems records | 3.1 Review forecasts according to enterprise policy<br>3.2 Ensure forecasts consider new developments in the area and technological changes where appropriate<br>3.3 Maintain updated systems records with information received from each installation amendment activity |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.4, 2.1, 2.4, 3.1, 3.2 | • Analyses and evaluates complex written and numerical text in specialised documentation to determine key information and specific requirements<br>• Evaluates complex text to determine legislative, regulatory and project requirements and their potential impact on the project |
| Writing | 2.4, 3.3 | • Develops complex material for a specific audience using clear, detailed language and visuals while employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information, and specialised and cohesive language |
| Oral Communication | 1.1, 1.3 | • Elicits views and opinions of others and obtains information by listening and questioning |
| Numeracy | 1.4, 2.1-2.4, 3.3 | • Interprets numerical information and applies |


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| | | |
|---|---|---|
| | | appropriate mathematical formulas to calculate different future possibilities<br>• Analyses data to measure present and predicted usage and assess different scenarios |
| Navigate the world of work | 2.4, 3.1 | • Monitors and reviews organisation's policies, procedures and adherence to legislative requirements to implement and manage change |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.2 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques experience and knowledge to focus in on the root cause<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL602 Forecast service demand | ICTNPL6030A Forecast service demand | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL602 Forecast service demand

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- collect accurate data vital to development of traffic and service variation
- generate relevant forecasts in relation to traffic and service variation using appropriate forecasting techniques
- accurately review forecasts relevant to specific planning periods.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe common telecommunications measurement quantities
- identify network and transmission equipment and describe their capabilities
- outline network topologies and common access and transmission hierarchies
- explain the configuration and use of software forecasting tools
- outline different forecasting techniques and sources of data to aid forecasting
- describe sources of market intelligence
- identify and describe new and emerging technologies
- outline typical customer applications and usage levels.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:


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- data from organisations involved in planning initiatives
- a range of current software
- relevant regulations
- specifications that impact forecasting activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNPL603 Undertake network performance analysis

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to undertake and manage monitoring, analysis and improvement of network performance, and involves analysing problems and organising repairs as well as coordinating software and hardware upgrades.

It applies to individuals with a high level of specialist technical skills and knowledge in optical telecommunications and IT networks using internet protocol (IP) systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Network planning

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse network performance to determine service levels | 1.1 Establish network type and quality of service (QoS) standard levels required, in conjunction with equipment suppliers and customer opinion, to determine the benchmark for network performance standards<br>1.2 Analyse trend analysis data and statistical data to assess level and type of network degradation |


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| | |
|---|---|
| | 1.3 Conduct performance tests according to established performance checklist to systematically evaluate QoS levels using appropriate performance analysis tools<br>1.4 Analyse test results and determine QoS levels and network problems<br>1.5 Establish restoration times in the event of service breakdown<br>1.6 Determine, organise and allocate resources necessary to monitor service levels |
| 2. Monitor integrity of the network | 2.1 Monitor alarm panels and verify message retrieval system on an ongoing basis to maintain network integrity<br>2.2 Undertake real time analysis of data from all sources to determine network health |
| 3. Manage delivery of quality service | 3.1 Conduct monitoring activities to maintain QoS levels and network integrity<br>3.2 Analyse trouble reports and performance data including customer feedback on a regular basis as an indicator of network performance<br>3.3 Analyse drive test data as an input to performance and optimise the network to improve network level of service |
| 4. Analyse problems and organise repair | 4.1 Analyse performance results regularly and initiate investigations when performance levels are below specified standards and recommend network changes<br>4.2 Analyse causes of problems by testing specific network components<br>4.3 Isolate problems where possible and escalate repair according to enterprise policy<br>4.4 Undertake evaluation testing after repair to ensure the problem has been rectified |
| 5. Coordinate upgrade of software and hardware | 5.1 Develop strategies to affect changes according to recommendations and produce a plan to coordinate activities<br>5.2 Produce a cost estimate of proposed change and submit a cost-benefit study for approval<br>5.3 Confirm shortcomings in hardware and software and negotiate with planners for network modifications<br>5.4 Evaluate modifications to ensure network compatibility and use of appropriate protocols providing QoS in the network<br>5.5 Produce a plan for software and hardware changes to be initiated with minimum network downtime and customer impact<br>5.6 Undertake tests following upgrade to ensure the level of performance planned as a result of the upgrade has been achieved<br>5.7 Produce documentation including configuration details and tests results and submit to network planner |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 1.6, 2.2, 3.1-3.3, 4.1 | • Analyses and evaluates complex written and numerical text in specialised documentation to determine key information and specific requirements<br>• Evaluates complex text to determine a plan to meet current and future needs |
| Writing | 1.1, 1.6, 4.1, 5.1-5.3, 5.5, 5.7 | • Develops complex material for a specific audience using clear and detailed language and visuals while employing expected forms and conventions<br>• Prepares reports which incorporate evaluation of information, recommendations and specialised and cohesive language |
| Oral Communication | 1.1, 1.6, 3.2, 4.1, 5.3 | • Elicits views and opinions of others and obtains information by listening and questioning |
| Numeracy | 1.2-1.5, 2.2, 3.2, 4.1, 5.2 | • Interprets numerical information and applies appropriate mathematical formulas to calculate different future possibilities<br>• Analyses data to measure present and predicted usage and assess different scenarios |
| Navigate the world of work | 1.3, 4.3 | • Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are being met<br>• Ensures knowledge of legislative requirements and products is kept up-to-date to provide accurate information |
| Interact with others | 1.1, 1.6, 3.2, 4.1, 5.3, 5.7 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact<br>• Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships<br>• Influences and fosters a collaborative culture facilitating a sense of commitment and |


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| | | |
|---|---|---|
| | | workplace cohesion |
| Get the work done | 1.1-1.6, 2.1, 2.2, 3.1-3.3, 4.1-4.4, 5.1, 5.3, 5.4, 5.6 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Makes high-impact decisions in a complex and diverse environment, using input from a range of sources<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques experience and knowledge to focus in on the root cause<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNPL603 Undertake network performance analysis | ICTNPL6046A Undertake network performance analysis | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNPL603 Undertake network performance analysis

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- interpret current network performance data accurately
- monitor integrity of the network
- manage delivery of quality service efficiently
- conduct accurate performance tests using appropriate performance analysis tools
- analyse problems and organise repair applying escalation procedures, if required, within service assurance guidelines
- coordinate upgrade of software and hardware efficiently.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the process for cost estimation
- outline the following aspects of customer interaction:
  - customer policies
  - expectancies
  - service level agreements
- explain the following features of the network:
  - alarms
  - compatibility and interoperability
  - operations
  - performance analysis methodologies
  - performance analysis tools


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  - performance tests
  - planning and design principles
- explain protocols providing QoS
- describe QoS standard levels
- describe software and hardware upgrades
- outline the following technologies and architectures:
  - switching network
  - transmission network
- describe technologies for the customer network.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Network Planning field of work and include access to:

- a site where network performance analysis may be conducted
- data from organisations involved in planning initiatives
- a range of current software
- relevant regulations
- specifications that impact service measures
- forecasting activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK301 Provide network systems administration

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to technically manage the elements of a network, including contributing to a disaster recovery plan.

It applies to individuals working as frontline technical support personnel responsible for administering a network.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Provide client access and security | 1.1 Provide logons, passwords and applications file access to users, and prepare the documentation in line with organisational requirements<br>1.2 Examine the records of user accounts, to determine access privileges and usage<br>1.3 Take the necessary action to ensure the maintenance of system integrity and security |
| 2. Provide the input into | 2.1 Provide input into the organisation's disaster recovery plan |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| and disseminate the disaster recovery plan | 2.2 Disseminate the disaster recovery plan to users, as required |
| 3. Monitor the network performance | 3.1 Perform the diagnostic tests associated with administering the network or system<br>3.2 Analyse and respond to diagnostic information<br>3.3 Monitor software usage, including any inappropriate or illegal use<br>3.4 Delete any illegal software from the system<br>3.5 Monitor the hardware response time, and other performance indicators<br>3.6 Determine and action, methods for improving the network and systems efficiency, according to the organisational guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.6 | • Recognises and interprets textual information from organisational guidelines to establish the job requirements |
| Writing | 1.1 | • Uses specific and relevant language to complete workplace documentation |
| Oral Communication | 1.1, 2.1 | • Articulates information clearly, using specific and relevant language suitable to the audience, to convey requirements, and listening and questioning techniques, to confirm understanding |
| Numeracy | 3.2 | • Interprets numerical data to monitor network operations |
| Interact with others | 2.2 | • Selects the appropriate form, channel and mode of communication for a specific purpose, relevant to own role |
| Get the work done | 1.3, 3.1, 3.2, 3.3, 3.6 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency, and |


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| | | |
|---|---|---|
| | | considering how to link with the work of others<br>• Understands the purposes, specific functions and key features of common digital systems, and tools, and operates them effectively to complete routine tasks<br>• Responds to highly obvious routine problems, using step by step instruction and procedures, or by a trial and error process, for non-critical situations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK301 Provide network systems administration | ICANWK301A Provide network systems administration | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK301 Provide network systems administration

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- sustain the operation of the network through the maintenance of network integrity, and by performing diagnostic tests
- contribute to the formulation of a disaster recovery plan, and provide the client with an optimised network that complies with the organisational guidelines
- implement network and systems efficiency, according to organisational guidelines
- provide the appropriate access to the network for users
- maintain, limit or enhance user access, according to authorised requests.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the network's operating system
- outline the different approaches to backing-up, and restoring, computer data
- describe the key elements contained in a disaster recovery policy
- describe the features of network file and folder permissions
- outline the vendor service-level agreement
- summarise operating systems supported by the organisation, their functions and basic features
- outline the organisation's access and security procedures
- identify and describe the organisational and technical systems
- describe the organisational procedures for protection against, and elimination, of computer viruses
- describe the policies and procedures for deleting, restoring and archiving files


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- describe the procedures for creating logons
- outline the security, and network, guidelines and procedures
- state the responsibilities for software copyright.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a live network
- systems administration tools currently used in the industry
- the organisational policy and procedures

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK302 Determine and action network problems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to document network related problems, determine solutions, or escalate problems to a new support level.

It applies to individuals, working as frontline technical support personnel, who maintain network continuity by isolating and rectifying network problems as they arise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine client requirements and identify if problem exists | 1.1 Log calls from help-desk support staff<br>1.2 Determine and document problem based on client requirements |
| 2. Determine whether problem is covered by policy | 2.1 Verify the scope and coverage of maintenance and technical support agreements relative to the problem and client requirements<br>2.2 Provide assistance according to organisational guidelines |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Carry out maintenance support on identified problem | 3.1 Conduct diagnostic tests around identified problem<br>3.2 Complete maintenance according to organisational guidelines<br>3.3 Obtain new components as part of the resolution, where necessary<br>3.4 Store or dispose of components according to organisational and environmental guidelines |
| 4. Prepare maintenance report and confirm solution | 4.1 Prepare maintenance report according to organisational guidelines and support agreements<br>4.2 Refer unresolved maintenance requirements to appropriate higher level service area<br>4.3 Follow up with the client to determine solution success and close the report |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2, 3.2, 3.4, 4.1 | • Recognises and interprets textual information from organisational guidelines and support agreements to establish the job requirements |
| Writing | 1.1, 1.2, 4.1 | • Uses industry-specific language to document problems and prepare maintenance reports in line with organisational guidelines and support agreements |
| Oral Communication | 4.2, 4.3 | • Provides clear explanations using language suitable to audience to discuss unresolved challenges<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 2.2, 3.4 | • Complies with explicit organisational policies and procedures |
| Get the work done | 1.2, 2.1, 2.2, 3.1-3.4, 4.3 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency, and |


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| | | |
|---|---|---|
| | | considering how to link with the work of others<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• May reflect on outcomes and identify what worked, or develop an improved approached for future situations<br>• Initiates standard diagnostic procedures when responding to familiar and unfamiliar problems within immediate context and seeks input from others when problems remain unresolved |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK302 Determine and action network problems | ICANWK302A Identify and resolve network problems | Updated to meet Standards for Training Packages.<br><br>The title has been edited to correct the wording to that of the original competency intent. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK302 Determine and action network problems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- document network related problems and determine the required resources
- solve client problems or escalate the problem according to organisational guidelines
- maintain the network with minimal disruption to clients.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain environmentally sound recycling and disposal procedures
- identify and summarise common networking procedures for:
  - call logging
  - contracting and maintenance requirements
  - problem escalation procedures
- outline inventory processes
- describe technical features and functions of network hardware and software systems
- describe common network problems relating to organisational information
- describe agreements used for technical support.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a network


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- hardware
- diagnostic tools, components and software
- records and reports
- organisational guidelines and procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK303 Configure and administer a network operating system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit defines the skills and knowledge required to create the network configuration required by a client and to set up and use administrative tools to manage the network.

It applies to individuals working as frontline technical support personnel who are required to maintain network continuity through changing requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assess network features | 1.1 Determine organisational policies and administration arrangements used to administer the network<br>1.2 Determine the type of network operating system (NOS) and interfaces used by the existing network and potential compatibility issues caused by integration of other networks<br>1.3 Identify the risks associated with administration of a network to minimise the loss of data or service during |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | operations<br>1.4 Determine network administration tools that can be used with the NOS to manage network performance and enforce organisational policies |
| 2. Administer and support the system using administration interfaces | 2.1 Use interfaces to format hard drives, set up security restrictions and establish user log-in information to administer a basic network<br>2.2 Use administration tools to develop a map of system interaction to determine the data required by particular users and how often the data is accessed<br>2.3 Examine existing applications and software, and plan required upgrades or reconfigurations to new system or applications<br>2.4 Test reconfiguration for successful interface with existing system to ensure compatibility |
| 3. Set up and manage the network file system | 3.1 Create a required file and folder structure using appropriate administration and system tools<br>3.2 Set the security, access and sharing of file system to meet user requirements<br>3.3 Identify and implement the virus protection requirements for the network in line with organisational procedures<br>3.4 Test and document the file system to ensure that appropriate access is available to the user groups according to organisational standards |
| 4. Administer user services and user accounts | 4.1 Determine the user services required, and implement using the appropriate administration and system tools<br>4.2 Create users and groups as required to facilitate user security and network access according to user authorisation<br>4.3 Verify successful access by users to authorised network data and resources, and record outcomes<br>4.4 Set or modify user settings to ensure compliance with security and access policies<br>4.5 Review procedures and take action to ensure that users who are no longer part of the organisation have their accounts disabled, deleted or modified |
| 5. Provide and support backup security | 5.1 Scan and clean the network of viruses before performing backup of the network |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.2 Determine security risks to which data is exposed and provide appropriate prevention methods and recovery processes<br>5.3 Report identified security risks to appropriate person<br>5.4 Implement systems to provide backup and service restoration capability in the event of a disaster, according to organisational policies<br>5.5 Document and disseminate the disaster recovery procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 3.2-3.4, 4.4, 4.5, 5.4 | • Recognises and interprets information from organisational policies and procedures to establish the job requirements |
| Writing | 3.4, 4.3, 5.5 | • Uses specific and relevant language to document new file systems, user access and disaster recovery procedures |
| Oral Communication | 5.3 | • Articulates information clearly using specific and relevant language suitable to audience to convey requirements, and uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.1, 3.3, 5.4 | • Complies with explicit organisational policies and procedures |
| Interact with others | 5.3, 5.5 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.1-1.4, 2.1-2.4, 3.1-3.4, 4.2-4.5, 5.1, 5.2, 5.4 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency, and considering how to link with the work of others<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |


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| | | |
|---|---|---|
| | | • May reflect on outcomes and identify what worked, or develop an improved approached for future situations<br>• Initiates standard diagnostic procedures when responding to familiar and unfamiliar problems within immediate context and seeks input from others when problems remain unresolved |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK303 Configure and administer a network operating system | ICANWK303A Configure and administer a network operating system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK303 Configure and administer a network operating system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use network administrative tools to carry out system administration tasks
- manage the network file system
- create the network configuration required by the client
- provide user services and user accounts
- provide backup and service restoration capability.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe antivirus software, its operation, installation and update procedures
- summarise current industry standard network operating system (NOS)
- outline the facilities available in the operating environment
- describe the features and capabilities of networking technologies
- explain the implementation of network security in a local area network (LAN) including:
  - file and folder permissions
  - users and group settings
- provide a summary of monitoring aspects of network performance or traffic including:
  - system administration tools
  - third-party tools.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- user network requirements
- antivirus software
- network administration tools
- a live network with a representative range of networked environments and operating systems
- a server
- technical records, organisational policies, access policy and documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK304 Administer network peripherals

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage an environment of networked peripheral devices, in order to provide services to client users.

It applies to individuals working as frontline technical support personnel responsible for connecting, maintaining and administering peripheral devices attached to networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Install peripherals to a network | 1.1 Plan the location of peripherals to provide appropriate services to users and to take work health and safety (WHS) standards into consideration<br>1.2 Connect peripherals to network, using vendor approved method and technology<br>1.3 Connect peripherals to computers in the network using parallel, serial or other direct connection methods<br>1.4 Add peripheral accessories or upgrades to printer, such as |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | memory or high-volume paper trays<br>1.5 Test peripherals for correct operation |
| 2. Configure peripheral services to manage peripherals | 2.1 Install software required to manage local and network connected peripherals<br>2.2 Use meaningful names for peripherals and control queues<br>2.3 Configure security and access to allow appropriate users to make use of peripherals<br>2.4 Configure workstation for peripherals to allow applications to work with peripherals |
| 3. Administer and support peripheral services | 3.1 Assign priority to control queues<br>3.2 Use peripheral management software supplied as part of the network operating system (NOS) or by third parties<br>3.3 Create templates for use on the network<br>3.4 Configure settings on the network to create maintenance schedules, usage logs, and cost centre usage statistics<br>3.5 Demonstrate to the user the methods for using peripheral services from their application or workstation |
| 4. Maintain peripherals and fix common problems | 4.1 Establish and follow a regular maintenance schedule as recommended by peripheral manufacturer<br>4.2 Replace consumables and components when required<br>4.3 Fix peripheral mishaps and malfunctions<br>4.4 Monitor peripheral usage and traffic and recommend additional peripherals if needed<br>4.5 Determine failures of peripheral services or devices and rectify as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.1 | • Recognises and interprets textual information from manufacturers guidelines to establish and follow a |


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| | | |
|---|---|---|
| | | regular maintenance schedule |
| Writing | 2.2, 4.1 | • Uses specific and relevant language when naming a peripheral device or creating new profiles |
| Oral Communication | 3.5 | • Articulates information clearly using specific and relevant language suitable to audience to convey information<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.1 | • Takes personal responsibility for adherence to legal/regulatory responsibilities relevant to own work context with specific reference to work health and safety (WHS) requirements |
| Interact with Others | 3.5 | • Uses a limited range of accepted practices for communicating in a work environment<br>• Recognises common cultural and other differences of people in the work context and makes adjustments in addressing these differences |
| Get the work done | 1.1, -1.5, 2.1- 2.4, 3.1-3.5, 4.2-4.5 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency, and considering how to link with the work of others<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems, including equipment services or devices malfunctions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK304 Administer network peripherals | ICANWK304A Administer network peripherals | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK304 Administer network peripherals

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and install peripherals
- connect and test peripherals to network
- manage the use of peripheral services with workstations
- maintain networked peripherals according to a maintenance schedule
- rectify faulty peripheral services or devices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe common network peripherals and their configuration
- identify and summarise current industry standards for network peripherals
- outline the general construction and operation of peripheral devices to facilitate troubleshooting.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry and include access to:

- a range of peripherals
- network administration tools
- a live network with a representative range of networked client server environments and operating systems


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- technical records, organisational policies and documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK305 Install and manage network protocols

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install and manage network protocols in a networking environment.

It applies to individuals with competent information and communications technology (ICT) skills, working as network administrators who are required to ensure that appropriate protocols have been installed in networks to allow user functionality and maintenance.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Install and manage network protocols | 1.1 Select, test and validate appropriate network protocol services<br>1.2 Design a network addressing system, with subnet and host IDs, including appropriate devices<br>1.3 Configure hosts and workstations to use IP addresses either manually or through automatic allocation of addresses, such as found with dynamic host configuration protocol (DHCP) |
| 2. Identify network | 2.1 Review a range of well-known network protocol applications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| protocol applications | 2.2 Evaluate client user requirement and recommend network protocol services<br>2.3 Apply internet protocol (IP) addressing scheme according to approved policy and procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2, 2.3 | • Recognises and interprets textual information, including technical manuals, to establish the job requirements |
| Writing | 2.2 | • Uses specific and relevant language to document new file systems, user access and disaster recovery procedures |
| Oral Communications | 2.2 | • Articulates clearly using specific and relevant language suitable to audience to convey requirements<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 2.3 | • Complies with explicit organisational policies and procedures<br>• Ensures knowledge of legislative requirements and products is kept up to date |
| Get the work done | 1.1-1.3, 2.1 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency, and considering how to link with the work of others<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Initiates standard procedures when developing and refining configuration protocols |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK305 Install and manage network protocols | ICANWK305A Install and manage network protocols | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK305 Install and manage network protocols

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- configure, test and validate network protocols in order to facilitate interconnectivity
- install and manage network protocols in a network, and troubleshoot problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain, including client organisation structure and business functionality
- list current communications technologies and their associated protocols
- outline current industry accepted hardware and software products, and general features and capabilities
- summarise network protocols currently in use in the organisation and industry, including:
  - transmission control protocol
  - internet protocol (TCP/IP)
  - OSI models
- clarify the vendor product range and development directions
- describe how network protocols transcend organisational size and network complexity.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:


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- a live network
- application software and operating system
- appropriate learning and assessment support when required
- networked computers
- organisational guidelines
- technical documentation and installation manuals
- vendor software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK306 Evaluate characteristics of cloud computing solutions and services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to recognise cloud computing characteristics in order to evaluate them. It involves a basic review and analysis of cloud computing delivery, and deployment models, and an evaluation of the benefits and challenges of implementing cloud computing solutions and services.

This unit applies to those engaged in the basic review of a cloud computing solution for an enterprise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to review cloud technology solutions and services | 1.1 Identify the common terminology, characteristics, major industry technology standards and concepts of cloud computing solutions and services<br>1.2 Identify the major organisational roles affected by cloud computing solutions and services<br>1.3 Identify the key business requirements most suitable for |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | transferring to cloud computing solutions and services |
| 2. Identify the differences between cloud delivery models | 2.1 Identify the characteristics associated with different cloud delivery models<br>2.2 Identify any other emerging cloud delivery models<br>2.3 Evaluate the advantages, and disadvantages, of combining different cloud delivery models |
| 3. Review the performance of different types of cloud deployment models | 3.1 Identify the characteristics associated with different cloud deployment models<br>3.2 Identify any other emerging cloud deployment models<br>3.3 Evaluate the advantages and disadvantages, of combining different deployment models |
| 4. Evaluate the benefits and challenges of using cloud computing solutions and services | 4.1 Identify the possible benefits of adopting cloud solutions and services<br>4.2 Identify the possible challenges of adopting cloud solutions and services<br>4.3 Review and document, the impact of implementing a cloud delivery model<br>4.4 Provide feedback to the appropriate personnel |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.2, 3.1-3.3, 4.1-4.3 | • Analyse and consolidates information, and data, from a range of sources against the defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 4.3, 4.4 | • Accurately records information and prepares correspondence and documentation, using clear language and organisational formats, and protocols |
| Oral Communications | 4.4 | • Selects and uses the appropriate strategies to establish and maintain spoken communication, in familiar, and some unfamiliar, contexts |


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| | | |
|---|---|---|
| | | • Derives meaning from a range of oral texts in familiar, and some unfamiliar, contexts |
| Get the work done | All | • Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness of the outcome<br>• Identifies ideas for other applications and considers them in current contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK306 Evaluate characteristics of cloud computing solutions and services | ICANWK306A Evaluate characteristics of cloud computing solutions and services | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK306 Evaluate characteristics of cloud computing solutions and services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- collate the information on the organisation’s need for cloud technology
- identify the key differences, and the performance, in cloud technology models
- determine the most appropriate cloud computing solution for the business
- provide feedback on the most appropriate cloud computing solution and service.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the current technology trends, and directions, in information and communications technology (ICT)
- identify the major industry technology standards used in cloud computing solutions and services
- recognise the vendor product directions in cloud computing solutions and services
- describe the current industry hardware and software products, and their general features, capabilities and application
- describe the principles of cloud computing solutions and technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- information on the cloud computing solution technologies currently used in the industry
- the business requirements


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- documents detailing work health and safety (WHS) standards, environmental guidelines, and enterprise requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK401 Install and manage a server

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install and manage a server. Server management includes initial configuration and testing, ongoing administration, software distribution and updates, profiling and monitoring servers, and troubleshooting.

It applies to individuals with competent information and communications technology (ICT) skills, employed in network management or server administration roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install a server | 1.1 Prepare for work, according to site specific safety requirements and enterprise workplace health and safety (WHS) processes and procedures<br>1.2 Obtain server applications and features from appropriate person<br>1.3 Choose most suitable operating system features and network services with reference to required server solution and technical requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Review required installation options<br>1.5 Analyse data migration requirements<br>1.6 Back up local data in preparation for installation<br>1.7 Arrange access to site and advise client of deployment and potential down time |
| 2. Install server as required by the specification | 2.1 Create disk partitioning scheme<br>2.2 Create file systems and virtual memory<br>2.3 Install network operating system<br>2.4 Install and configure server applications and network services<br>2.5 Reconnect and reconfigure connectivity devices<br>2.6 Patch the operating system and applications to ensure maximum security and reliability<br>2.7 Restore local data to new server |
| 3. Configure and administer the server | 3.1 Configure network directory service<br>3.2 Create and manage accounts to facilitate security and network access<br>3.3 Configure user environment using operating system policies and scripts<br>3.4 Create directory structure and quotas to meet client requirements<br>3.5 Configure and manage print services<br>3.6 Set the security, access and sharing of system resources to meet client requirements<br>3.7 Implement security policy to prevent unauthorised access to the system<br>3.8 Implement backup and recovery methods to enable restoration capability in the event of a disaster<br>3.9 Configure update services to provide automatic updates for operating system and applications |
| 4. Monitor and test the server | 4.1 Test server for benchmarking against client specification and requirements according to test plan, and record outcomes<br>4.2 Analyse the error report and make changes as required<br>4.3 Use troubleshooting tools and techniques to diagnose and correct server problems |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.4 Test required changes or additions<br>4.5 Validate changes or additions against specifications |
| 5. Complete documentation and clean up worksite | 5.1 Make and document server configuration and operational changes<br>5.2 Complete client report and notification of server status<br>5.3 Clean up and restore worksite to client's satisfaction<br>5.4 Secure sign-off from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 3.3, 4.2 | • Recognises and interprets technical documentation to determine job requirements |
| Writing | 4.1, 4.2, 5.1, 5.2 | • Uses clear, specific and industry related terminology to produce and update workplace documentation |
| Oral Communication | 1.2, 1.7 | • Articulates information clearly using specific and relevant language suitable to audience to convey information<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.5, 4.2 | • Uses mathematical formulae to take test measurements, interpret results and evaluate performance and interoperability of the network |
| Navigate the world of work | 1.1, 5.3 | • Takes personal responsibility for adherence to legal/regulatory responsibilities relevant to own work context<br>• Understands nature and purpose of own role and associated responsibilities, and how it contributes to the work of others in the immediate work context |
| Interact with others | 5.4 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |


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| | | |
|---|---|---|
| Get the work done | 1.3, 1.4, 1.6, 1.7, 2.1-2.7, 3.1-3.9, 4.1, 4.3, 4.4, 4.5, 5.1 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when adapting configuration procedures, depending on differing operational contingencies, risk situations and environments<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks, adapting some functions to improve personal efficiency |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK401 Install and manage a server | ICANWK401A Install and manage a server | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK401 Install and manage a server

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install and configure server
- configure network connectivity
- manage the server operating system, including user accounts, file, network directory and print services
- perform backup and recovery
- update operating system and software
- monitor and test server
- troubleshoot server and network failures.

Candidates should demonstrate competency in at least TWO different network operating systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe current network hardware and software systems and their requirements, including:
  - network operating systems (NOS)
  - server applications including compatibility issues and resolution procedures
  - desktop applications and operating systems
- recognise and describe basic server installation and maintenance processes and procedures, including:
  - documentation skills for networks
  - error logging and reporting
  - high availability options for file systems, including redundant array of independent disks (RAID) and replication


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  - network directory services and network service configuration
  - options for performance tuning
  - user authentication
- specify and describe processes and procedures required to support and manage a server, including:
  - best practice for implementing backup and recovery procedures
  - boot process
  - operating system help and support utilities
  - operating system installation methods, including installation from CD or DVD, universal serial bus (USB) boot disk, network and script (automated install)
  - printer management
  - process and task management, including process termination
  - task scheduling utilities
  - troubleshooting tools and techniques, including network diagnostic utilities
  - user account and password management.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where server installation may be conducted
- relevant server specifications including:
  - cabling
  - local area networked (LAN) computers
  - server diagnostic software
  - switch
  - client requirements
- wide area network (WAN) service point of presence
- workstations
- relevant regulatory documentation that affects installation activities.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK402 Install and configure virtual machines for sustainable ICT

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop and implement virtualisation technologies with the goal of providing a more sustainable information and communications technology (ICT) environment.

It applies to individuals who work in the network area of organisations and are responsible for the use of virtual machines to increase sustainability.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify virtualisation benefits and features | 1.1 Research and determine government and industry guidelines and policies for use of desktop and server virtualisation<br>1.2 Identify benefits of virtualisation of desktop and server environments<br>1.3 Identify available features of current virtualisation software<br>1.4 Select virtualisation solution based on current and future |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | needs of the client |
| 2. Install and configure virtualisation software | 2.1 Identify, clarify and organise requirements of the client relating to virtualisation technologies, following organisational requirements<br>2.2 Identify hardware, software and infrastructure components required to be installed and configured to meet technical requirements<br>2.3 Install and configure software to provide support for virtualisation of desktop and server operating systems<br>2.4 Configure virtualisation software application features to accommodate required functionality, relating to client and business needs |
| 3. Install and configure virtual machines | 3.1 Install virtual machine consistent with client, commercial and business requirements<br>3.2 Configure virtual machine consistent with client, commercial and business requirements<br>3.3 Test functionality of installed virtual machine |
| 4. Configure virtual networks of virtual machines | 4.1 Configure internet protocol (IP) addressing to match chosen network configuration<br>4.2 Configure virtual network as host only configuration<br>4.3 Configure virtual network as bridged configuration<br>4.4 Configure virtual network as network address translation (NAT) configuration<br>4.5 Configure services to operate under current network configuration<br>4.6 Test functionality of virtual network configuration |
| 5. Back up and restore virtual machines | 5.1 Back up virtual machine state on shutdown<br>5.2 Restore state on start-up of virtual machine<br>5.3 Back up virtual hard drive and software configuration files<br>5.4 Restore virtual hard drive and software configuration files |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.1, 3.2 | • Recognises and interprets industry and government guidelines and organisational policy to determine job requirements |
| Oral Communication | 1.4, 2.1 | • Elicits information and client business needs by using listening and questioning techniques |
| Navigate the world of work | 2.1 | • Complies with explicit organisational policies and procedures |
| Get the work done | 1.2-1.4, 2.1, 2.3, 2.4, 3.1-3.3, 4.1-4.6, 5.1-5.4 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when adapting configuration procedures, depending on differing operational contingencies, risk situations and environments<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology and when seeking to understand the potential impact of new technology<br>• In familiar contexts, responds promptly and intuitively to problems involving virtualised machine environments requiring immediate attention |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK402 Install and | ICANWK402A Install and | Updated to meet | Equivalent |


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| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| configure virtual machines for sustainable ICT | configure virtual machines for sustainable ICT | Standards for Training Packages | unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK402 Install and configure virtual machines for sustainable ICT

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- apply sustainability practices related to current information and communications technology (ICT) network design
- research, identify and develop a virtual machine environment
- implement and maintain a virtual machine environment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the current government and industry policies and guidelines related to developing sustainable ICT environments
- identify and describe current technologies and processes designed to produce a sustainable ICT environment
- state the available tools and software applications required to manage virtual machines
- define the structure, function and business organisation of client
- outline the configuration of software applications required to manage virtual machines
- describe the configuration requirements required to integrate virtual machines into an existing network design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site or prototype where virtual machine environments may be implemented


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- network technical requirements
- software tools to support implementation of virtual machines.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTBWN301 Perform tests on optical communication system and components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to test optical communication systems and components in the field using portable test instruments

It applies to individuals who are installation contractors, technical staff and field officers from telecommunications service providers or other private and public organisations or regulatory authorities. They combine technical skills with organisational and administrative skills when working on broadband passive optical networks (PON), fibre to the x (FTTx) networks, hybrid fibre coaxial (HFC) networks and dense wavelength division multiplexing (DWDM) systems during installation, maintenance, commissioning and troubleshooting phases.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – broadband and wireless networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use optical measuring instruments | 1.1 Obtain relevant legislation, codes, regulations and standards and prepare for given work<br>1.2 Notify client for site access, security arrangements and location |


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| | |
|---|---|
| | details of optical system and test purpose<br>1.3 Identify site hazards and notify appropriate personnel to make site safe<br>1.4 Devise and implement risk control and safety measures when using high power laser test instruments and optical time-domain reflectometer (OTDR) associated with<br>launch fibres, patch cords or enclosure adaptors<br>1.5 Prepare testing plan indicating type of measurement at nominated wavelength, based on equipment specifications and in<br>consultation with client<br>1.6 Select appropriate tools and test instruments according to required measurement and enterprise practice |
| 2. Conduct optical measurements | 2.1 Set up test instrument according to manufacturer's instructions, and according to work health and safety (WHS) and environmental requirements<br>2.2 Perform measurement using knowledge of appropriate testing techniques in safe manner to assess performance of optical system or component<br>2.3 Record test results and compare with standard test specifications from manufacturer and enterprise guidelines<br>2.4 Evaluate test results and report on functionality of optical component or equipment and performance of optical system |
| 3. Document measurement results | 3.1 Document test results for future reference and make recommendations on optimising component and system performance<br>3.2 Clean work site and make safe according to enterprise requirements and to client satisfaction<br>3.3 Notify appropriate personnel of job completion for sign off and present test documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.6, 2.1, 2.3, 3.2 | • Interprets information from relevant sources to plan and identify all job requirements |


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| | | |
|---|---|---|
| Writing | 1.2-1.5, 2.3, 2.4, 3.1, 3.3 | • Accurately completes relevant reports and documentation using clear and technically specific language |
| Oral Communication | 1.2-1.5, 2.4, 3.3 | • Uses listening and questioning skills to confirm understanding of requirements, and participates in a verbal exchange of ideas and solutions<br>• Uses appropriate, detailed and clear language to address key personnel and clients |
| Numeracy | 1.5, 1.6, 2.2-2.4 | • Performs mathematical calculations to check, interpret and confirm results of system tests |
| Navigate the world of work | 1.3, 1.4, 1.6, 2.1, 2.3, 3.2 | • Complies with explicit policies and procedures, and explores and implements where identified the implicit expectations of policies and procedures<br>• Understands roles and responsibilities for task and makes basic decisions on work completion parameters |
| Interact with others | 1.2, 1.4, 1.5, 2.4, 3.3 | • Uses a limited range of accepted practices for communicating in a work environment<br>• Recognises common cultural and other differences of people in the work context and makes adjustments in addressing the differences |
| Get the work done | 1.1, 1.3, 1.4, 1.6, 2.1, 2.2, 3.1, 3.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions and evaluates the effectiveness of the outcome |

# Range of Conditions

*This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) should be included.*

| | |
|---|---|
| Instruments/devices to be used must include: | • laser light source including visual laser light source<br>• laser power meter<br>• passive optical network (PON) meter<br>• optical time domain reflectometer (OTDR) |
| Optical measurements to be taken and recorded must | • optical power levels<br>• insertion loss of a passive device<br>• end-to-end fibre loss (bi-directional) |


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| | |
|---|---|
| include: | • splice loss<br>• distance to fault, event, end of fibre using an (OTDR) |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTBWN301 Perform tests on optical communication system and components | ICTBWN3082B Perform tests on optical communication system and components | Updated to meet Standards for Training Packages | Equivalent unit |

# Links


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# Assessment Requirements for ICTBWN301 Perform tests on optical communication system and components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- carry out work according to job specifications and work health and safety (WHS) regulations
- determine and plan optical tests and measurements
- use optical measuring instruments and devices
- perform and record optical measurements
- assess and make recommendations from the test results
- document and present test outcomes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the consequences of mating contaminated optical connectors
- summarise downstream and upstream signals
- discuss dense wavelength division multiplexing (DWDM) metro and long haul system architecture
- outline hybrid fibre coaxial (HFC) architecture (optical section)
- explain logarithmic power levels (decibels and dBm)
- discuss optical connector types
- summarise optical fibre and laser safety, practices, handling and application
- identify optical spectrum limits, wavelengths used in various applications and International Telecommunications Union (ITU) grid
- explain the role of optical transmitters and receivers


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- explain passive optical network (PON) architecture
- discuss transmission system line rates:
  - optical ethernet
  - synchronous digital hierarchy (SDH)
- summarise wavelength division multiplexing (WDM), coarse wavelength division multiplexing (CWDM) and DWDM principles, and optical multiplexers.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – broadband and wireless networks field of work and include access to:

- a site where installation of supporting infrastructure may be conducted
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK403 Manage network and data integrity

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to lead the development of asset protection processes, determining threats and implementing controls to mitigate risk.

It applies to individuals working as middle managers including information security managers, network engineers and network technicians who are responsible for implementing and managing the organisational disaster recovery and asset protection policy and procedures.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Ensure compliance with company network and security policies | 1.1 Review company security policies<br>1.2 Audit and record security access<br>1.3 Ensure user accounts are controlled<br>1.4 Ensure secure file and resource access |
| 2. Conduct audit on system assets | 2.1 Use appropriate tools and techniques to conduct audit on system hardware and software assets |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Develop a system to record assets<br>2.3 Use system to develop reports on assets for management |
| 3. Implement an antivirus solution | 3.1 Research appropriate antivirus and anti-malware solutions<br>3.2 Implement antivirus or anti-malware solution<br>3.3 Test antivirus and anti-malware solution functionality |
| 4. Implement systems to protect assets from threats | 4.1 Determine environmental threats to data<br>4.2 Document systems to protect from environmental threat<br>4.3 Implement system to protect data from environmental threat |
| 5. Develop a backup solution | 5.1 Determine appropriate backup type to meet systems needs<br>5.2 Investigate current backup media options<br>5.3 Implement a backup solution<br>5.4 Demonstrate functionality of backup solution<br>5.5 Demonstrate restore of data from backup media<br>5.6 Implement a real time backup and data sync solution |
| 6. Monitor network performance | 6.1 Determine available network performance monitoring tools<br>6.2 Implement network performance monitoring tools to monitor network<br>6.3 Produce report on network performance |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1 | • Interprets textual information from relevant sources to identify software solutions and adherence to company security policies |
| Writing | 1.2, 2.2, 2.3, 4.2, 6.3 | • Develops material for a specific audience, using clear and detailed language in order to convey explicit information, requirements and recommendations |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1 | • Complies with explicit organisational policies and procedures |
| Get the work done | 1.2, 1.3, 2.1-2.3, 3.2, 3.3, 4.1, 4.3, 5.1-5.6, 6.1, 6.2 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when applying solutions in networks, including systems management processes, and deploys rapid solutions to problems involving management of network assets<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Understands the importance of secure information and privacy, and takes personal responsibility for identifying and managing risk factors |

# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Security policies must include: | • data security<br>• physical security<br>• remote access<br>• user logon. |
| Tools must include: | • hardware and software audit tools, including:<br>  • MSINFO32<br>  • DXdiag<br>  • Microsoft Software Inventory Analyzer (MSIA)<br>  • E-Z Audit<br>• hardware and software logs. |
| Backup type must include: | • copy<br>• differential<br>• folder and drive synchronisation |


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| | |
|---|---|
| | • full and normal incremental<br>• redundant array of independent disks (RAID). |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK403 Manage network and data integrity | ICANWK403A Manage network and data integrity | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK403 Manage network and data integrity

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify user access control issues
- use appropriate tools to conduct audit on system assets
- implement and test antivirus solution
- employ systems to negate environmental threats
- demonstrate features of data backup, restore and system roll back
- perform network monitoring using a variety of current standard tools
- add network controls according to network and data integrity policies.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the broad principles of data integrity on a network, including:
  - auditing and control of user access
  - asset tracking and auditing
  - current antivirus solutions and techniques
- describe backup, restore and rollback procedures
- identify and describe system and network monitoring tools and their related functions
- recognise and overview the client organisation structure and business functionality as they relate to data integrity
- select and describe the tools and applications required to manage network and data integrity, including the disaster recovery processes.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site or prototype where network and data integrity strategies may be implemented and managed
- use of network support tools currently used in industry
- the organisation's security policies, manufacturer recommendations and network and data integrity protection standards.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to utilise networking fundamentals, including wide area network (WAN) technologies, basic security, routing and switching fundamentals, and to configure simple networks.

It applies to individuals working in a network support position. They would use the appropriate tools, equipment, software and protocols to install, operate, and troubleshoot, a small enterprise branch network.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Specify the operation of a data network | 1.1 Identify the various network elements<br>1.2 Use the open system interconnections (OSI) and transmission control protocol, or internet protocol (TCP/IP), models to explain how data flows in a network<br>1.3 Define the purpose, and basic operation, of the protocols in |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the OSI and TCP/IP models<br>1.4 Identify common network problems at layers 1, 2, 3 and 7, using a layered model approach |
| 2. Implement a small switched network | 2.1 Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts<br>2.2 Identify the network segmentation, basic traffic management and switching requirements<br>2.3 Perform, save and verify the initial switch configuration tasks<br>2.4 Verify the network status and switch the operation using basic utilities<br>2.5 Implement and verify the basic security for a switch |
| 3. Implement an IP addressing scheme and IP services to meet network requirements | 3.1 Specify the need and role of addressing in a network<br>3.2 Create and apply an addressing scheme to a network<br>3.3 Assign and verify valid IP addresses to hosts, servers and networking devices in a local area network (LAN) environment<br>3.4 Specify the operational requirements of private and public IP addressing<br>3.5 Implement static and dynamic addressing services for hosts in a LAN environment<br>3.6 Enable the network address translation (NAT) for a small network, with a single internet service provider (ISP) and connection, and verify the operation<br>3.7 Configure the dynamic host configuration protocol (DHCP) on a router |
| 4. Implement a small routed network | 4.1 Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts<br>4.2 Research and select a basic router<br>4.3 Perform, save and verify basic router configuration tasks<br>4.4 Configure and verify, a classless routing protocol<br>4.5 Verify the device configuration and network connectivity, using basic utilities<br>4.6 Implement the password, and physical security |
| 5. Implement and verify WAN links | 5.1 Research different methods for connecting to a WAN<br>5.2 Configure and verify, the basic WAN serial connection |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 6. Troubleshoot a small enterprise branch network | 6.1 Identify and resolve, common switched network issues<br>6.2 Identify and correct, IP addressing issues<br>6.3 Troubleshoot DHCP and NAT on a router<br>6.4 Identify and resolve, common routing problems<br>6.5 Troubleshoot basic WAN connection problems |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1, 2.2, 4.1, 4.2, 4.6, 5.1 | • Interprets and critically analyses complex texts<br>• Applies appropriate strategies to construct meaning from complex texts |
| Writing | 3.1, 3.4, 4.4 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose and audience<br>• Writes and edits computer code, and technical data, ensuring the correct syntax and accuracy |
| Oral Communication | 1.1, 1.2, 1.3, 2.2, 3.1, 3.4, 4.2, 5.1 | • Articulates clearly using specific and relevant language suitable to the audience, to convey information<br>• Uses listening and questioning techniques to confirm the understanding of clients |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 5.1, 5.2, 6.1, 6.2, 6.3, 6.4, 6.5 | • Determines job priorities, resources and equipment and works logically and systematically, to undertake clearly defined and familiar tasks<br>• Understands the purposes, specific functions, and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Recognises and responds to |


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| | | |
|---|---|---|
| | | predictable routine problems, related to own role in the immediate work context, including debugging, switch and router network issues |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK404 Install, operate and troubleshoot a small enterprise branch network | ICANWK404A Install, operate and troubleshoot a small enterprise branch network | Updated to meet Standards for Training Packages.<br><br>Minor changes to Performance Criteria for clarity. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- specify the network elements
- implement a small switched network
- select and implement the suitable network addressing protocols
- select and install a router
- identify and verify, wide area network (WAN) links
- test and resolve the problems for a small enterprise branch network.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the design of an internet protocol (IP) addressing scheme
- describe how to install, configure and test the network elements, in order to ensure interoperability within the network
- explain how to apply network topologies, protocols and security solutions and troubleshoot defined network problems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where the network installation may be conducted
- small enterprise routers and switches


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- the network's design documentation
- the equipment specifications
- hardware and software
- the organisational guidelines
- computers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK405 Build a small wireless local area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to build and arrange connectivity to a single zone wireless local area network (WLAN).

It applies to individuals with competent information and communications technology (ICT) skills using one wireless access point or wireless router in a small-to-medium enterprise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm client and equipment requirements | 1.1 Identify, clarify and organise client requirements according to network needs and organisational requirements<br>1.2 Ensure an appropriate person has given the authority for wireless network access<br>1.3 Evaluate requirements along with business needs, and translate into technical requirements<br>1.4 Identify components to be installed in order to meet the technical requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Select position for access point, based on user requirements and environmental conditions<br>1.6 Arrange for preliminary work to be carried out to meet cabling and power requirements |
| 2. Select, install and configure wireless access point | 2.1 Select access point device based on current and future client needs<br>2.2 Install and configure access point to provide wireless access to network<br>2.3 Configure services<br>2.4 Test access point and verify wireless connection and security arrangements<br>2.5 Select, install and configure appropriate wireless card where necessary for legacy equipment |
| 3. Configure network | 3.1 Configure security and other key parameters consistent with commercial and business requirements<br>3.2 Test security and firewall arrangements with appropriate test equipment<br>3.3 Test the network with user equipment for general compatibility and access |
| 4. Train users | 4.1 Determine devices to be connected to the network<br>4.2 Demonstrate how pairing and log-on arrangements are established to user<br>4.3 Inform users of wireless network etiquette and traffic capacity issues<br>4.4 Develop user documentation |
| 5. Monitor and administer wireless network | 5.1 Monitor wireless network performance using diagnostic tools<br>5.2 Debug networking issues to maintain trouble-free wireless connection<br>5.3 Document current settings and store securely |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.5 | • Recognises and interprets textual information to determine business requirements and all environmental requisites |
| Writing | 4.4, 5.3 | • Develops material for a specific audience, using clear and detailed language in order to convey explicit information, and keeps a record of relevant setting information |
| Oral Communication | 1.1, 1.2, 4.2, 4.3 | • Uses listening and questioning skills to clarify job requirements<br>• Uses appropriate, detailed and clear language to address key personnel and to disseminate information |
| Navigate the world of work | 1.1 | • Complies with explicit organisational policies and procedures |
| Get the work done | 1.1, 1.3-1.6, 2.1-2.5, 3.1-3.3,4.1, 5.1-5.3 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Recognises and responds to predictable routine problems related to role in the immediate work context, including connectivity and security issues |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK405 Build a small wireless local area network | ICANWK405A Build a small wireless local area network | Updated to meet Standards for Training Packages<br>Reinstated element 5 to performance criteria | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK405 Build a small wireless local area network

## Modification History

| Release | Comments |
|---|---|
| Release 2 | Reinstatement of element 'Monitor and administer wireless network' to Elements and Performance Criteria.<br>This version released in ICT Information and Technology Training Package version 3.1 |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop, implement and maintain wireless networks
- install, configure and test wireless access points
- test security and network to business specifications
- develop user training material
- monitor and resolve wireless network issues.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline features of security threats
- summarise the basic principles of network security, including:
  - audit and intrusion detection systems
  - auditing and penetration testing techniques
  - authentication methods
  - network protocols and operating systems
  - security protocols, standards and data encryption
- describe the factors that impact on a small wireless network, including:
  - bandwidth and quality of service


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  - factors affecting signal quality
  - layer 2 and layer 3 design issues
  - features of a small office or home office (SOHO) network
  - wireless security strategies
  - wireless topologies
  - wireless local area network (WLAN) solutions
- outline the protocols and their application for wireless networks, including:
  - transmission control protocol (TCP)
  - internet protocol (IP).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- network technical requirements
- network infrastructure, including wireless hardware and software.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK406 Install, configure and test network security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install, configure and test network security in an information and communications technology (ICT) network.

It applies to individuals working as ICT professionals who install, configure and test secure networks of any size.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assess network security threats and vulnerabilities to identify risk | 1.1 Assess and report on current system security, according to required asset security level<br>1.2 Determine additional network, software, hardware and system security threats and vulnerabilities<br>1.3 Use identified threats and vulnerability information to identify security risks<br>1.4 Make recommendations to management to address security deficiencies, according to current and future commercial and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | business requirements |
| 2. Implement countermeasures for identified vulnerabilities and threats | 2.1 Implement required level of perimeter security based on current and future business needs<br>2.2 Assess and implement best practice server and network hardening techniques and measures<br>2.3 Implement secure authentication and user account controls<br>2.4 Secure data integrity and transmission |
| 3. Test and verify functionality and performance of security system implemented | 3.1 Design test items to verify key function and performance measures against criteria<br>3.2 Conduct function and performance tests recording results<br>3.3 Modify and debug security system as necessary<br>3.4 Develop documentation on current system settings and file for future reference |
| 4. Provide systems for monitoring and maintaining security | 4.1 Monitor current network security, including physical aspects, using appropriate third party testing software where applicable<br>4.2 Review logs and audit reports to identify and record security incidents, intrusions or attempts<br>4.3 Carry out spot checks and audits to ensure that procedures are not being bypassed<br>4.4 Document newly discovered security threats, vulnerabilities and risks in a report for presentation to appropriate person to gain approval for changes to be made |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.2 | • Recognises and interprets textual information to determine specific information about security incidents |
| Writing | 1.1, 1.4, 3.2, 3.4, | • Accurately records test results and develops material for a specific audience, using clear and |


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| | | |
|---|---|---|
| | 4.4 | detailed language in order to convey explicit information |
| Oral Communication | 1.1, 1.4, 4.4 | • Articulates information clearly, using specific and relevant language suitable to audience to convey recommendations and provide verbal reports<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.4 | • Extracts and evaluates the mathematical information embedded in a range of tasks and texts |
| Get the work done | 1.1-1.4, 2.1, 2.3, 2.4, 3.1-3.3, 4.1, 4.3 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Recognises and responds to predictable routine problems related to own role in the immediate work context, including detecting intrusion and debugging the system when required<br>• Automatically implements standard procedures for routine decisions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK406 Install, configure and test network security | ICANWK406A Install, configure and test network security | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK406 Install, configure and test network security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- assess and identify security threats, vulnerabilities and risks
- determine appropriate countermeasure for threat, vulnerability or risk
- implement countermeasure per threat or risk
- install, configure and test network elements to ensure perimeter security
- test and verify function and performance of selected security measures
- monitor network for suspicious activity and take appropriate action where necessary
- document newly discovered threats, vulnerabilities and risks, including change recommendations for approval.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline authentication issues
- summarise the security requirements of the client business domain, including:
  - organisation structure and business functionality
  - features and capabilities of networking technologies
  - privacy issues and privacy legislation
  - security information sources
  - risk analysis
- outline common virtual private network (VPN) issues, including bandwidth and dynamic security environment
- explain how to configure routers and switches


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- summarise current industry accepted hardware and software security products, including general features and capabilities
- outline the function and operation of VPN concepts, including encryption, firewalls, packet tunnelling and authentication
- outline network protocols and operating systems
- summarise organisational issues surrounding security
- outline security perimeters and their functions
- describe security protocols, standards and data encryption
- summarise security threats, including eavesdropping, data interception, data corruption and data falsification
- outline types of VPNs, including site-to-site and user-to-site internet traffic and extranets
- summarise the systems and procedures related to:
  - audit and intrusion detection systems
  - auditing and penetration testing techniques
  - cryptography
  - local area network (LAN), wireless local area network (WLAN) and wide area network (WAN)
  - screened subnets
  - transmission control protocols or internet protocols (TCPs/IPs) and applications
  - use of virus detection software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where secure network installation may be conducted
- network security documentation
- equipment specifications
- network components
- hardware and software
- firewalls (hardware and software)
- a live network
- organisational guidelines
- networked (LAN) computers
- WAN service point of presence.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK407 Install and configure client-server applications and services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install, configure, maintain and support server-side applications as well as client applications on network workstations, in both Windows based and Linux based networks.

It applies to individuals working as network administrators and network support staff who implement the installation and configuration of client-server based software.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine client -server software requirements | 1.1 Select a client-server solution that best fits the desired outcome for a given scenario<br>1.2 Select hardware required to implement the client-server solution for the desired outcome<br>1.3 Select an appropriate host operating system for the client's server software |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Obtain and configure server application software according to industry best practice | 2.1 Investigate the range of client-server products available for the desired outcome, including commercial and open source<br>2.2 Identify hardware requirements<br>2.3 Identify available operating system platforms to host the client-server software |
| 3. Install, configure, and manage services to meet business requirements | 3.1 Install client-server software to both server and client hardware according to business guidelines<br>3.2 Configure the client-server software according to vendor guidelines<br>3.3 Monitor client-server performance to ensure performance, according to business requirements<br>3.4 Manage the installation of upgrades and patches to the client-server software environment<br>3.5 Backup and maintain client-server software |
| 4. Assess configuration effect on overall network design | 4.1 Identify appropriate utilities to monitor and determine network performance<br>4.2 Create network performance benchmarks prior to and on completion of client-server software installation<br>4.3 Compare benchmarks to assess performance effect on network after installation of client-server software |
| 5. Test and sign off | 5.1 Test operation of the client-server software to ensure client requirements are met<br>5.2 Obtain sign-off from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1, 3.2 | • Recognises and interprets technical and vendor-specific information to determine business requirements |
| Writing | 4.2 | • Develops material for a specific audience, using clear and detailed language in order to convey explicit |


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| | | |
|---|---|---|
| | | information |
| Numeracy | 4.2, 4.3 | • Interprets numerical information to analyse memory, hard disk and performance requirements |
| Navigate the world of work | 3.1, 3.2 | • Recognises and follows explicit and implicit protocols, and meets expectations associated with own role |
| Interact with others | 5.2 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.5, 4.1, 5.1 | • Uses logical planning processes and an increasingly intuitive understanding of context to identify relevant information to plan business operating system requirements<br>• Reflects on the ways in which digital systems and tools are used, or could be used, to achieve work goals, and begins to recognise strategic and operational applications<br>• Uses familiar digital systems and tools to access, organise, analyse and display relevant information<br>• Troubleshoots configuration and operational requirements by recognising and anticipating an increasing range of familiar problems, their symptoms and causes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK407 Install and configure client-server applications and services | ICANWK407A Install and configure client-server applications and services | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK407 Install and configure client-server applications and services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install and configure server based client-server software
- install and configure client software to communicate with appropriate server software
- test operation of client-server software
- identify and implement required updates for client-server software
- monitor performance of client-server software
- backup and maintain client-server software.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the requirements for client-server applications and services, including:
  - computer hardware and software required
  - internet protocol (IP) addressing
  - networking fundamentals
  - operating systems
- identify and describe the operating system help and support utilities required, including:
  - procedures for implementing backup and recovery
  - software installation and configuration
  - user account and password management
  - troubleshooting tools and techniques
  - network diagnostic utilities.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a client-server based network
- appropriate client-server software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK408 Configure a desktop environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install, configure and support a desktop or workstation operating system in a networked environment.

It applies to individuals with competent technical skills employed in information and communications technology (ICT) support roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install a desktop operating system | 1.1 Prepare for work according to site specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.2 Obtain desktop applications and features from appropriate person<br>1.3 Review required installation options and file systems<br>1.4 Determine and apply knowledge of licensing, hardware and system requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Analyse data migration requirements<br>1.6 Backup local data in preparation for installation<br>1.7 Arrange access to site and advise client of deployment and potential down times |
| 2. Install desktop operating system | 2.1 Install or upgrade desktop operating system using appropriate installation or update method<br>2.2 Install desktop applications according to identified requirements<br>2.3 Configure network settings to connect workstation to network<br>2.4 Patch the operating system and applications to ensure maximum security and reliability<br>2.5 Restore local data to new workstation |
| 3. Configure desktop environment | 3.1 Configure hardware devices<br>3.2 Administer user environment<br>3.3 Create file and directory structure using appropriate administration and system tools<br>3.4 Configure access to external data<br>3.5 Configure desktop applications according to business requirements |
| 4. Operate command line interface | 4.1 Open a command line interface<br>4.2 Run commands and scripts from the command line interface<br>4.3 Manipulate files using the command line |
| 5. Configure desktop security | 5.1 Modify default user settings to ensure that they match organisational security policies<br>5.2 Modify file and directory ownership and permissions to ensure data security requirements are met<br>5.3 Ensure password security<br>5.4 Check appropriate legal notices are displayed at logon<br>5.5 Implement security options for network protocols<br>5.6 Configure security settings for desktop applications according to business requirements |
| 6. Monitor and test the desktop | 6.1 Test desktop environment to ensure that client, functionality and performance requirements have been met |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 6.2 Analyse and respond to diagnostic information<br>6.3 Use troubleshooting tools and techniques to diagnose and correct desktop problems<br>6.4 Document the desktop environment, according to organisational policy |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 3.5, 5.1, 5.4, 5.6, 6.4 | • Recognises and interprets technical material, organisational policy and regulatory information to determine job requirements |
| Writing | 6.4 | • Prepares written reports and workplace documentation that communicate information clearly and effectively |
| Oral Communication | 1.2, 1.7 | • Articulates clearly using specific and relevant language suitable to audience to convey important information<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.5, 6.2 | • Analyses numerical test measurements to evaluate workstation performance |
| Navigate the world of work | 1.1 | • Appreciates the implications of legal and regulatory responsibilities related to own work |
| Get the work done | 1.1, 1.3-1.6, 2.1- 2.5, 3.1-3.5, 4.1-4.3, 5.1-5.3, 5.5, 5.6, 6.1-6.3 | • Uses logical planning processes and an increasingly intuitive understanding of context to identify relevant information to plan business operating system requirements<br>• Reflects on the ways in which digital systems and tools are used, or could be used, to achieve work goals, and begins to recognise strategic and operational applications<br>• Uses familiar digital systems and tools to access organise, analyse and display relevant information |


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| | | |
|---|---|---|
| | | • Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK408 Configure a desktop environment | ICANWK408A Configure a desktop environment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK408 Configure a desktop environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install and configure a desktop operating system
- attach the desktop to the network
- configure the desktop operating system, including user accounts, file and print services, and security
- perform backup and recovery
- update operating system and software
- monitor and troubleshoot the desktop environment.

Candidates should demonstrate competency in at least TWO different desktop operating systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the features of current desktop operating systems, applications, compatibility issues and the resolution procedures
- summarise the configuration requirements of a desktop environment, including:
  - command line interface and scripts
  - controlling the boot process
  - error logging and reporting
  - file naming conventions related to selected operating system
  - network protocols and transmission control protocol or internet protocol (TCP/IP) network connectivity
  - operating systems and their functions, including file system, memory management and process scheduling
  - printer driver and queue management


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    - process or task management, including process termination
    - tools available for remote assistance and administration
    - troubleshooting tools and techniques, including network diagnostic utilities
    - user account, group and password administration and guidelines for selecting a secure password
- explain file system navigation and manipulation utilities, including:
    - edit, copy, move and search
    - operating system help and support utilities
- summarise relevant work health and safety (WHS) and regulatory requirements for desktop operators.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where server installation may be conducted
- relevant server specifications, including:
    - cabling
    - local area network (LAN)
    - diagnostic software
    - switch
    - client requirements
    - wide area network (WAN) service point of presence
    - desktop workstations
- relevant regulatory documentation that affects installation activities.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK409 Create scripts for networking

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake scripted programming tasks for networking related activities.

It applies to individuals with competent technical skills employed in network or systems administration roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop algorithms to represent solutions to a given problem | 1.1 Consult with client and key stakeholders to identify the problem and associated script requirements<br>1.2 Employ abbreviated software development cycle to script creation<br>1.3 Develop an algorithm to solve the problem and meet client requirements<br>1.4 Develop an algorithm which takes account of expected possible situations |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Develop an algorithm which is guaranteed to end<br>1.6 Use structure, sequence, selection and iteration |
| 2. Create code | 2.1 Select appropriate scripting language<br>2.2 Demonstrate understanding and application of basic language syntax rules and best practices<br>2.3 Select and use language data types, operators and expressions to create clear and concise code<br>2.4 Use techniques of selection, iteration and sequence to control script execution flow<br>2.5 Use techniques for sequential file input and output to retrieve and store information<br>2.6 Obtain and use user input to affect the operation of the script<br>2.7 Apply internal document principles to created code<br>2.8 Follow organisational guidelines for developing maintainable code when creating scripts<br>2.9 Adhere to coding standards when creating scripts |
| 3. Use operating system tools | 3.1 Use searching and sorting tools to select information from the logging output of operating system (OS)<br>3.2 Implement controls to ensure that where significant events occur, script creates and maintains a log of operations via operating system logging mechanism<br>3.3 Register and run scripts with OS scheduling facility |
| 4. Test and debug code | 4.1 Engineer, document and conduct simple tests to confirm code meets design specification<br>4.2 Identify areas that are not covered or are covered incorrectly in the script<br>4.3 Take action to ensure that code complies with security policy<br>4.4 Take action to ensure that code operates with proper permissions<br>4.5 Use script debugging techniques suitable for use with scripting language to detect and resolve errors of syntactical, logical and design origin |
| 5. Document script | 5.1 Create technical-level documentation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.2 Create user-level documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.8, 2.9, 4.3 | • Recognises and interprets technical material, organisational policy and regulatory information to determine job requirements |
| Writing | 2.7, 3.2, 4.1, 5.1, 5.2 | • Prepares user, peer and technical documentation that communicates complex information clearly and effectively |
| Oral Communication | 1.1, 2.6 | • Uses listening and questioning skills to confirm understanding for requirements, participates in a verbal exchange of ideas/solutions and uses appropriate, detailed and clear language to address key personnel and to disseminate information |
| Navigate the world of work | 2.8, 2.9, 4.3 | • Recognises and follows explicit protocols and meets expectations associated with own role |
| Numeracy | 1.3-1.5, 2.3 | • Creates complex algorithms to calculate and process data for code creation |
| Get the work done | 1.2, 2.1-2.5, 2.8, 3.1-3.3, 4.1, 4.2, 4.4, 4.5 | • Uses logical planning processes and an increasingly intuitive understanding of context to identify relevant information to plan business requirements<br>• Reflects on the ways in which digital systems and tools are used, or could be used, to achieve work goals and begins to recognise strategic and operational applications<br>• Understands the key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology<br>• Seeks advice and feedback from client when making decisions<br>• Applies formal problem solving processes when tackling an unfamiliar problem, breaking complex |


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| | | |
|---|---|---|
| | | issues into manageable parts and identifying and evaluating options |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK409 Create scripts for networking | ICANWK409A Create scripts for networking | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK409 Create scripts for networking

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop an algorithmic statement of a solution for a set process
- design, document, construct and test a small single purpose operating system (OS) utility application in response to a problem description
- create scripted programs that access information stored in files on the system and use system utility programs to sort or find information within these files
- validate and record script results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the principles of algorithm design
- identify and describe operating system components and processes, including:
  - command line interface
  - log files
  - program scheduling utilities
  - development methodologies
  - tools and utilities
  - testing methods
- explain debugging for a variety of scripting scenarios
- outline programming structured control constructs: sequence, selection and iteration
- summarise scripting techniques and language syntax.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- technical requirements
- software development environment
- software testing environment.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK410 Install hardware to a network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan, manage and install new hardware components in a network.

It applies to individuals employed in technical information and communications technology (ICT) support roles, such as network administrators, who support network hardware in a peer-to-peer or client-server networked environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine network hardware requirements | 1.1 Assess client network hardware and cabling requirements, considering compatibility with existing application software and operating system<br>1.2 Analyse requirements against local area network (LAN), wide area network (WAN), wireless networks, and mobile equipment access design limitations and organisational guidelines<br>1.3 Evaluate client requirements according to organisational guidelines, corporate purchasing procedures, licensing |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | arrangements and budget |
| 2. Obtain network hardware | 2.1 Contact vendors and obtain technical specifications<br>2.2 Evaluate or test hardware according to client requirements and organisational guidelines<br>2.3 Document recommendations and provide copies to appropriate person<br>2.4 Determine and document licensing requirements and security issues<br>2.5 Acquire hardware according to recommendations and organisational procedures<br>2.6 Organise cabling infrastructure where required |
| 3. Install network hardware | 3.1 Conduct installation with minimal disruption to clients<br>3.2 Install hardware according to appropriate installation procedures<br>3.3 Configure and test the installation to ensure that it meets client needs |
| 4. Provide instruction and support for installed products | 4.1 Determine and document client instructions and needs<br>4.2 Provide one-to-one or group instruction to client and users as required<br>4.3 Obtain client evaluation and feedback to ensure that client requirements have been met |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.2, 2.5 | • Recognises and interprets licensing and security issues, technical information and organisational procedures to determine job requirements |
| Writing | 2.4, 4.1 | • Prepares information which incorporates evaluation of information and specialised and cohesive language in a format and style appropriate to a specific audience |


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| | | |
|---|---|---|
| Oral Communication | 2.1, 2.3, 4.1-4.3 | • Uses listening and questioning skills to confirm understanding for requirements<br>• Participates in regular verbal exchanges and uses appropriate, detailed and clear language to address key personnel and to disseminate information |
| Numeracy | 1.3 | • Uses mathematical formulas and calculations to estimate and plan costs according to business budgets |
| Navigate the world of work | 1.2, 1.3, 2.4, 2.5 | • Appreciates the implications of legal and regulatory responsibilities related to own work |
| Get the work done | 1.1-1.3, 2.2, 2.5, 2.6, 3.1- 3.3 | • Determines job priorities, resources and equipment, and works logically and systematically to maintain the continuity of network operations and business functions during network installation tasks<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Recognises and responds to predictable routine problems related to own role in the immediate work context<br>• Automatically implements standard procedures for routine decisions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK410 Install hardware to a network | ICANWK410A Install hardware to a network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK410 Install hardware to a network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate client user requirements and hardware installation
- install a range of network hardware by planning, managing and supporting the installation of new components in a network, according to organisational policies and procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise current industry, data and voice networking, security products, devices and procedures, including:
  - current industry accepted network protocols
  - organisational contracting procedures and responsibilities
  - system diagnostic software
- outline current industry accepted network hardware and software products
- explain hardware and software installation procedures
- describe local area network (LAN) capabilities and characteristics, such as network type, internet protocol (IP) addressing, switch or hub operation
- describe various features of network connections, including types of cables, cabling distance limitations and wireless connections
- outline operating systems sufficient to enable basic installation
- summarise set-up and configuration procedures
- describe software packages supported by the organisation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- vendor hardware and software components
- application software and operating system
- hardware maintenance tools
- a live network
- networked computers
- organisational guidelines
- technical documentation and installation manuals.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK411 Deploy software to networked computers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan, manage and support the installation of new or upgraded software to networked computers according to vendor and organisation specifications.

It applies to individuals involved in installing, configuring, maintaining and supporting software, such as network administrators and network support staff.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine operating system and software and hardware requirements | 1.1 Assess client software and licensing requirements, considering compatibility with existing application software and operating system<br>1.2 Assess hardware requirements<br>1.3 Analyse requirements against local area network (LAN), wide area network (WAN), and wireless networks within organisational guidelines<br>1.4 Evaluate client requirements according to organisational |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | guidelines, corporate purchasing procedures and budget |
| 2. Obtain deployment software to automate deployment | 2.1 Evaluate deployment software according to client requirements and organisational guidelines<br>2.2 Contact vendors and obtain technical specifications, including support arrangements and licensing<br>2.3 Acquire software and licences according to organisational procedures<br>2.4 Store software licences and manuals according to organisational guidelines |
| 3. Automate installation of operating system via network | 3.1 Plan and deploy operating system according to appropriate vendor installation procedures, with minimal disruption to network and clients<br>3.2 Configure and test installation to ensure that it meets client needs and vendor specifications<br>3.3 Install updates and patches |
| 4. Automate installation of software packages via network | 4.1 Plan and deploy software packages according to appropriate vendor installation procedures, with minimal disruption to network and clients<br>4.2 Configure and test installation to ensure that it meets client needs and vendor specifications<br>4.3 Install updates and patches |
| 5. Test and sign off | 5.1 Test installed operating system and software for error-free performance, identifying and resolving problems<br>5.2 Determine and document security and licensing issues<br>5.3 Obtain client evaluation and feedback to ensure that client requirements have been met |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 2.1, 2.3, 2.4, | • Recognises and interprets technical, licensing |


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| | | |
|---|---|---|
| | 3.1, 3.2, 4.1, 4.2 | and organisational information to determine business requirements |
| Writing | 1.3, 5.2 | • Develops material for a specific audience, using clear and detailed language in order to convey explicit information |
| Oral Communication | 2.2, 5.3 | • Uses active listening, observational and questioning techniques in order to identify information and confirm, clarify or revise understanding<br>• Uses specific and relevant language to obtain information to determine job requirements |
| Numeracy | 1.4 | • Uses mathematical formulas and calculations to estimate and plan costs according to business budgets |
| Navigate the world of work | 1.1, 1.3, 1.4, 2.1-2.4, 5.2 | • Appreciates the implications of legal and regulatory responsibilities related to own work |
| Get the work done | 1.1-1.4, 2.1, 2.3, 2.4, 3.1-3.3, 4.1-4.3, 5.1 | • Determines job priorities, resources and equipment, and works logically and systematically<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Uses analytical processes to respond to deployment and configuration issues in the immediate work context<br>• Automatically implements standard procedures for routine decisions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK411 Deploy software to networked computers | ICANWK411A Deploy software to networked computers | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK411 Deploy software to networked computers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify client software requirements
- plan and deploy automatic installation of operating system and software
- configure and test installation, ensuring client needs are met.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise network protocols and operating systems, including:
  - transmission control protocols (TCP)
  - internet protocols (IPs)
  - network applications
- describe organisational contracting procedures and responsibilities
- outline software licensing requirements and documentation
- explain current industry standards related to software deployment, including:
  - deployment software configuration
  - configuration of automated deployment processes
  - operating system deployment
  - software package deployment
  - troubleshooting deployment processes.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site or prototype where deployment processes may be implemented
- a live network
- software tools to support implementation of deployment processes
- technical documentation and installation manuals
- organisational guidelines.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK412 Create network documentation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to determine network requirements, and produce and evaluate appropriate network documentation.

It applies to individuals with good task management and competent information and communications technology (ICT) skills, who are working as network administrators, technicians and support personnel.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine network documentation requirements | 1.1 Consult with appropriate personnel<br>1.2 Identify network documentation standards<br>1.3 Define network configuration<br>1.4 Develop naming standards and labelling schemes<br>1.5 Develop network addressing scheme and verify, using calculations |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design network diagrams and checklists | 2.1 Identify network software mapping tools<br>2.2 Use network software mapping tools to design network diagrams<br>2.3 Develop plans and checklists<br>2.4 Develop manuals |
| 3. Produce network documentation | 3.1 Validate documentation structure with appropriate personnel<br>3.2 Produce network diagrams<br>3.3 Produce network plans and checklists<br>3.4 Produce procedure and policy manuals<br>3.5 Prepare documentation for publication |
| 4. Complete network documentation | 4.1 Check network documentation with appropriate personnel<br>4.2 Select appropriate media<br>4.3 Publish network documentation<br>4.4 Record and store essential network documentation<br>4.5 Notify appropriate personnel of the completed network documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2 | • Gathers, interprets and analyses current industry information from a range of sources and identifies relevant and key information |
| Writing | 1.4, 2.3, 2.4, 3.2-3.5, 4.4, 4.5 | • Prepares workplace documentation which incorporates an evaluation of information and specialised and cohesive language in a format and style appropriate to a specific audience |
| Oral Communication | 1.1, 3.1, 4.1, 4.5 | • Articulates requirements and strategies clearly and distinctively, using technical language appropriate to audience and environment |


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| | | |
|---|---|---|
| Numeracy | 1.5 | • Recognises, compares and interprets technical data when developing network addressing scheme |
| Get the work done | 1.2, 1.3, 1.5, 2.1, 2.2, 4.2- 4.4 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing, prioritising and monitoring own work<br>• Uses familiar digital systems and tools to access, organise, analyse and display information relevant to role<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Makes a range of important decisions in relatively complex situations, taking a range of constraints into account |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK412 Create network documentation | ICANWK412A Create network documentation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK412 Create network documentation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine client requirements
- design network documentation according to standards
- produce network documentation according to design specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain open systems interconnect (OSI) layered communication model
- summarise network requirements related to:
  - applications
  - life cycles
  - manageability
  - quality of service
- explain network design concepts related to:
  - financial constraints
  - network topologies
  - organisation requirements
  - physical constraints
  - security issues.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- relevant network documentation
- legislation and standards documentation
- industry codes of practice.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK414 Create a common gateway interface script

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to define and produce common gateway interface (CGI) script and install that script on a server.

It applies to individuals working in the network or web development area who are required to use CGI scripting as a common means of interacting with websites, providing security access to directories and databases.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define specification for CGI script | 1.1 Determine the functionality of the CGI form<br>1.2 Define the functionality of the CGI script<br>1.3 Choose appropriate language in which to write the CGI script<br>1.4 Determine server requirements |
| 2. Create CGI form and write script | 2.1 Produce a hypertext markup language (HTML) web document that uses the form elements required by the CGI |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | script specification and includes the uniform resource locator (URL) for the CGI script<br>2.2 Write the CGI script to function as required by the CGI script specification |
| 3. Test CGI script | 3.1 Configure the server, if required, that will host the CGI script<br>3.2 Upload the CGI script to the server<br>3.3 Run the CGI form and assess its output<br>3.4 Reiterate until the specification for the CGI script is met |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 1.2, 2.1, 2.2 | • Prepares workplace documentation that incorporates an evaluation of technical information and specialised and cohesive language in a format and style appropriate to a specific audience |
| Numeracy | 2.1, 3.3, 3.4 | • Analyses numerical data to determine functionality of script |
| Get the work done | 1.1, 1.3, 1.4, 2.1, 3.1-3.4 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing, prioritising and monitoring own work<br>• Uses familiar digital systems and tools to access, organise, analyse and display information relevant to role<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Makes a range of important decisions in relatively complex situations, taking a range of constraints into account<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK414 Create a common gateway interface script | ICANWK414A Create a common gateway interface script | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK414 Create a common gateway interface script

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review the requirements
- produce common gateway interface (CGI) forms and scripts to meet the requirements
- upload scripts to a server
- test the script and rework until requirements are met.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe a scripting language suitable for CGI
- describe CGI 1.1/1.2 specifications and their functionality
- describe the security issues surrounding CGI
- outline common web servers
- outline the principles behind copyleft and Free Software Foundation
- describe copyright and intellectual property issues relating to programming.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- web servers
- an e-business website
- file transfer protocol (FTP) or file transfer client software


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- server access.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK416 Build security into virtual private networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to build security into a virtual private network (VPN).

It applies to individuals with competent information and communications technology (ICT) skills and who are working in the network area and are required to ensure that VPNs contain required security.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Configure router to provide for network security monitoring and management | 1.1 Create and apply audit rules consistent with policies, standards, protocols and management systems<br>1.2 Configure router to provide appropriate level of asset security and monitoring of security consistent with commercial and business requirements<br>1.3 Monitor and manage system to assess the level of security and attempts to breach security of framework components<br>1.4 Employ appropriate hardware and software to monitor and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | address security issues and provide VPN solutions |
| 2. Secure a site-to-site VPN | 2.1 Configure internet key exchange (IKE) and internet protocol security (IPSec)<br>2.2 Configure site-to-site IPSec VPN using pre-shared keys<br>2.3 Configure site-to-site IPSec VPN using digital certificates |
| 3. Secure a remote access VPN | 3.1 Configure a VPN server<br>3.2 Install and administer a router management console<br>3.3 Develop documentation on current system settings and framework components, and file securely for future reference |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Gathers, interprets and analyses current industry rules from a range of sources and identifies relevant and key information |
| Writing | 1.1, 3.3 | • Prepares workplace documentation that incorporates an evaluation of information and specialised and cohesive language in a format and style appropriate to a specific audience |
| Navigate the world of work | 1.1 | • Recognises and follows explicit and implicit protocols, and meets expectations associated with own role |
| Get the work done | 1.2-1.4, 2.1-2.3, 3.1-3.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant information and risks<br>• Understands the importance of secure information in relation to own work and takes personal responsibility for identifying and managing risk<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Initiates standard procedures when responding to |


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| | | |
|---|---|---|
| | | familiar problems within the immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK416 Build security into virtual private networks | ICANWK416A Build security into virtual private networks | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK416 Build security into virtual private networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- configure a router to provide the required security
- implement and maintain security functionality for a virtual private network (VPN), including:
  - site to site VPN
  - remote access VPN
- produce security documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the characteristics of a VPN system, including:
  - site to site
  - remote access systems
  - network protocols and operating systems relevant to VPN, including its features, issues and functions
- describe the security requirements for a VPN, including:
  - auditing and penetration testing techniques
  - configuration of routers and switches
  - security protocols, standards and data encryption
  - processes and techniques related to security perimeters and their functions
  - security threats, including eavesdropping, data interception, data corruption and data falsification


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    - transmission control protocol or internet protocol (TCP/IP) protocols and applications audit and intrusion detection systems
    - authentication issues
- recognise and describe the differences between common networks, including:
    - local area network (LAN)
    - wireless local area network (WLAN)
    - wide area networks (WAN)
- identify and describe organisational issues surrounding:
    - security cryptography
    - screened subnets
    - virus detection software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- network technical requirements
- network infrastructure, including servers and security hardware and software.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK417 Build an enterprise wireless network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to build an enterprise, community or mesh wireless network within and outside buildings.

It applies to individuals with excellent task management, interpersonal and information and communications technology (ICT) skills working in senior design roles in the networking area, who are required to develop complex wireless networks for organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm client requirements and network equipment required | 1.1 Identify and clarify organisational requirements of the client<br>1.2 Evaluate client requirements along with business needs in order to translate into technical requirements<br>1.3 Review existing network design documentation to ensure it is authorised, current and complete<br>1.4 Identify network topology<br>1.5 Identify the components required to be installed to meet the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | technical requirements<br>1.6 Contact vendors and service suppliers to obtain specifications and availability of identified components<br>1.7 Ensure preliminary work is completed within the required timeframe |
| 2. Prepare for installation | 2.1 Ensure client and users are aware of date and time of installation<br>2.2 Gather, prepare and check installation and safety equipment<br>2.3 Assess on-site safety arrangements for installers and users |
| 3. Select, install and configure access points and other wireless devices | 3.1 Select appropriate hardware based on identified components<br>3.2 Install and configure hardware to provide wireless access to network<br>3.3 Ensure connections are secured against intrusion or data access by unauthorised persons, are safe for users, and are protected from the environment<br>3.4 Configure security, monitoring, logging and quality of service features consistent with standards and protocols<br>3.5 Ensure test equipment is calibrated<br>3.6 Test wireless network systems performance and verify that it meets enterprise requirements and is consistent with standards and protocols |
| 4. Select, install and configure antennas | 4.1 Select appropriate antennas based on design plan<br>4.2 Safely install and configure antennas to provide wireless access to network<br>4.3 Measure and assess signal strength within and outside building<br>4.4 Resolve and report radio frequency interference issues |
| 5. Select, install and configure antennas | 5.1 Identify possible security threats to assets<br>5.2 Configure client server and helper security devices<br>5.3 Configure associations and filters |
| 6. Train users | 6.1 Provide training for users to establish and manage network connections<br>6.2 Resolve pairing and log-on difficulties for users<br>6.3 Inform users of wireless network etiquette and traffic |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | capacity issues<br>6.4 Advise users of help desk contact details |
| 7. Monitor and administer wireless network | 7.1 Monitor wireless network performance using diagnostic tools, including appropriate software<br>7.2 Debug networking issues to maintain trouble-free wireless connection<br>7.3 Document current settings and store securely, consistent with commercial and business requirements |
| 8. Finalise build process | 8.1 Review network for performance issues, planned maintenance or upgrade requirements<br>8.2 Report to client with network documentation and recommendations for performance issues<br>8.3 File documentation according to organisational guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 1.5, 3.4, 3.6, 4.1, 8.3 | • Gathers, interprets and analyses information from a range of sources and identifies relevant and key information |
| Writing | 4.4, 7.3 | • Prepares workplace documentation that incorporates an evaluation of information and specialised language in a format and style appropriate to a specific audience |
| Oral Communication | 1.1, 1.2, 1.6, 2.1, 4.4, 6.1, 6.3, 6.4, 8.2 | • Uses active listening and observational and questioning techniques to identify information and confirm, clarify or revise understanding<br>• Articulates requirements and strategies clearly and distinctively, using technical language appropriate to audience and environment |
| Numeracy | 3.5, 4.3 | • Interprets numerical information to calibrate equipment and measure and assess signal strength |


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| | | |
|---|---|---|
| Navigate the world of work | 8.3 | • Complies with explicit organisational policies and procedures |
| Interact with others | 6.1, 6.3, 6.4, 8.2 | • Recognises and applies the protocols governing what to communicate, with whom and how in a range of different contexts |
| Get the work done | 1.4, 1.5, 1.7, 2.2, 2.3, 3.1-3.6, 4.1, 4.2, 4.4, 5.1-5.3, 6.2, 7.1-7.3, 8.1, 8.3 | • Uses a combination of formal, logical planning processes to ensure work is completed according to time constraints and an increasingly intuitive understanding of context to identify relevant information and risks<br>• Understands the importance of secure information in relation to own work and takes personal responsibility for identifying and managing risk<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Initiates standard procedures when solving a broad range of ICT problems<br>• Uses familiar digital systems and tools to access, organise, analyse and store information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK417 Build an enterprise wireless network | ICANWK417A Build an enterprise wireless network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK417 Build an enterprise wireless network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- confirm client organisational and business requirements
- determine hardware and software requirements
- prepare for safe installation
- select, install and configure required wireless hardware
- train users
- test, monitor, and administer the installation
- finalise installation and prepare required documents documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- Identify and describe current wireless local area network (WLAN) and wireless area network (WAN) solutions, including:
  - audit and intrusion detection systems
  - auditing and penetration testing techniques
  - bandwidth and quality of service
  - factors affecting signal quality
  - layer 2 and layer 3 design issues
  - suitability for small office home office (SOHO) and enterprise local area networks (LANs)
  - transmission control protocols or internet protocols (TCPs/IPs) and applications
  - wireless topologies


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- describe the common features of security threats and how to develop a security strategy, including:
  - security protocols
  - standards
  - data encryption
- identify and describe common network protocols and operating systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- technical requirements
- network infrastructure, including wireless hardware and software.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK418 Implement backbone technologies in a local area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement core layer (backbone) connectivity in a local area network (LAN) for applications between floors in a multi-storey building or between separate buildings.

This unit focuses on configuring high-speed (high-bandwidth) channels between high-end switches.

It applies to individuals who are required to enable backbone connectivity in a LAN.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define network | 1.1 Identify current and future network requirements based on the organisation's business and technical requirements<br>1.2 Design an appropriate structure to meet client requirements, such as video, audio or data application services |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Design a network addressing system with subnet and host identities (IP addressing) and virtual LANs (VLANs)<br>1.4 Identify and document resource requirements according to network design |
| 2. Install and configure network backbone | 2.1 Install and configure switches and routers according to network requirements and resources<br>2.2 Install network protocol suites using configurations on switch uplink ports as required by network design specifications<br>2.3 Configure hosts and workstations for network access |
| 3. Test and validate network | 3.1 Test network connectivity to ensure operation parameters are met between hosts on segments or VLANs<br>3.2 Make adjustments as required<br>3.3 Validate and document network performance |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2 | • Gathers, interprets and analyses current network design specifications and identifies relevant and key information |
| Writing | 1.4, 3.3 | • Prepares technical documentation that incorporates an evaluation of information and specialised and cohesive language in a format and style appropriate to a specific audience |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.1-3.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to prioritise tasks and contingency arrangements<br>• Uses mobile communication tools and specialised software to ensure that geographically distributed team members remain connected in virtual environments<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Initiates standard procedures when responding to familiar problems within the immediate context |


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| | | |
|---|---|---|
| Reading | 2.2 | • Gathers, interprets and analyses current network design specifications and identifies relevant and key information |
| Writing | 1.4, 3.3 | • Prepares technical documentation that incorporates an evaluation of information and specialised and cohesive language in a format and style appropriate to a specific audience |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.1-3.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to prioritise tasks and contingency arrangements<br>• Uses mobile communication tools and specialised software to ensure that geographically distributed team members remain connected in virtual environments<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Initiates standard procedures when responding to familiar problems within the immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK418 Implement backbone technologies in a local area network | ICANWK418A Implement backbone technologies in a local area network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK418 Implement backbone technologies in a local area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- define, design and document the structure of the network and subnets required for the network
- build and test an asynchronous transfer mode (ATM) local area network (LAN) that provides the required services at the required communication standards
- document resource requirements and network performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline current and emerging industry practice associated with:
  - bandwidth limitations, measuring and testing
  - LAN and wide area network (WAN) network topologies (three-layer LAN hierarchy: core distribution and access)
  - MAC addresses, network layer protocols
  - open systems interconnect (OSI) layer modelling
  - routers
  - virtual LANs
- identify and describe network interface cards (NICs) and switches, including:
  - fast Ethernet
  - gigabit
  - 10-gigabit Ethernet
  - store-and-forward
  - fast-forward


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  - fragment-free
- identify and describe internetworking protocol suites, including:
  - TCP/IP
  - IPX
  - DECnet
  - AppleTalk
  - IPv6.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- local area network infrastructure
- switches with various interfaces.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK419 Identify and use current virtualisation technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use virtualisation technology, according to the industry standards for reviewing and demonstrating work processes, skills and techniques to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of virtualisation technology.

This unit applies to individuals engaged in ongoing review and research who review, and maintain, business processes at the highest level possible.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use virtualisation technologies | 1.1 Identify the enterprise requirements, and determine the need for desktop virtualisation software<br>1.2 Identify the virtualisation vendors and the different types of virtualisation technology that they offer<br>1.3 Identify, review and select the desktop virtualisation software, where appropriate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Select suitable desktop virtualisation software |
| 2. Use desktop virtualisation software to assist in solving organisational problems | 2.1 Test the desktop virtualisation software<br>2.2 Use the features and functions of desktop virtualisation software in an organisational context, in line with environmental factors<br>2.3 Demonstrate an in-depth of knowledge of desktop virtualisation technologies, to an accepted industry standard<br>2.4 Access and use, the sources of information relating to desktop virtualisation technology |
| 3. Evaluate the desktop virtualisation software performance | 3.1 Review the effect of desktop virtualisation software on benefits to the enterprise<br>3.2 Seek feedback from users, where appropriate, and update the desktop |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.4, 3.1 | • Critically analyses documentation from a variety of sources and records, and consolidates information, to determine requirements |
| Writing | 3.2 | • Writes, edits and proofreads documents to ensure clarity of meaning, and the accuracy and consistency of information |
| Oral Communication | 3.2 | • Uses specific and relevant language to clearly describe and explain, a range of technical, operational and business-related matters, with internal and external personnel |
| Navigate the world of work | 1.1, 2.2 | • Identifies, and acts on, issues that contravene relevant policies, procedures and legal requirements<br>• Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with | 3.2 | • Selects and uses, the appropriate conventions and protocols when communicating with clients and |


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| | | |
|---|---|---|
| others | | co-workers, in a range of work contexts |
| Get the work done | 1.1-1.4, 2.1, 2.2, 2.3, 3.1 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes, for more complex and non-routine situations<br>• Contributes to the continuous improvement of current work practices, by applying basic principles of analytical and lateral thinking |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK419 Identify and use current virtualisation technologies | ICANWK419A Identify and use current virtualisation technologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK419 Identify and use current virtualisation technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify current new, and emerging, virtualisation technology
- identify and use, the features and functions of industry-specific virtualisation technologies
- review and evaluate the virtualisation software.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe current technology trends, and directions, in information and communications technology (ICT), specifically in the major industry technology standards used in virtualisation technology
- recognise the vendor product directions relating to virtualisation technology
- outline current industry hardware and software products, and their general features, capabilities and application
- recognise information-gathering techniques
- describe the environmental and sustainability policies of the workplace
- identify the features of virtualisation technology
- recognise how to test, and evaluate, virtualisation technology
- locate the appropriate sources of information regarding virtualisation technology.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:


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- a site where industry-specific technologies may be used
- industry-specific technologies currently used in the industry
- documents detailing work health and safety (WHS) standards, environmental guidelines, and enterprise requirements
- the virtualisation software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK501 Plan, implement and test enterprise communication solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage deployment and administration of an enterprise messaging environment.

It applies to individuals working as information and communications technology (ICT) professionals who configure and deploy software to supply mail, collaboration and messaging services in an enterprise environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan, implement and test an enterprise email solution | 1.1 Plan implementation to provide mail services to meet business requirements<br>1.2 Prepare existing network for mail server installation<br>1.3 Install and configure mail servers<br>1.4 Configure users, mailboxes, address lists, distribution lists and user constraints |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Configure mail-client access<br>1.6 Configure message integrity and anti-spam, antivirus and anti-phishing measures<br>1.7 Configure message transport to deliver mail within and outside enterprise<br>1.8 Monitor mail system performance<br>1.9 Implement measures to provide high availability and data recovery<br>1.10 Test functionality |
| 2. Plan, implement and test remote access to email | 2.1 Plan remote access to mail<br>2.2 Configure mail system to provide remote access<br>2.3 Test remote mail access |
| 3. Plan, implement and test an enterprise web portal or content management solution | 3.1 Plan namespace and server roles, and deploy web portal or content management software<br>3.2 Configure access and security<br>3.3 Configure network infrastructure<br>3.4 Manage design and customisation of portal and related services<br>3.5 Monitor performance and logs<br>3.6 Implement measures to provide high availability and disaster recovery<br>3.7 Test functionality |
| 4. Plan, implement and test business collaboration tools | 4.1 Plan namespace and server roles, and deploy business collaboration software<br>4.2 Configure access and security<br>4.3 Configure network infrastructure<br>4.4 Customise to meet business requirements<br>4.5 Monitor performance and logs<br>4.6 Implement measures to provide high availability and disaster recovery<br>4.7 Test functionality |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.5 | • Gathers, interprets and analyses technical documentation to test and implement business tools successfully |
| Numeracy | 1.10, 3.5 | • Selects and interprets mathematical information that may be partly embedded in a range of familiar and less familiar tasks to evaluate performance and interoperability of communication services |
| Get the work done | 1.1-1.10, 2.1-2.3, 3.-3.4, 3.6, 3.7, 4.1-4.4, 4.6, 4.7 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to plan, design and implement a communications solution<br>• Reflects on the ways in which digital systems and tools are used, or could be used, to achieve work goals and begins to recognise strategic and operational applications<br>• Uses specialised software to ensure a business can engage with geographically distributed team members in virtual environments<br>• Initiates standard procedures when responding to a predictable range of network and software compatibility problems |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK501 Plan, implement and test enterprise communication solutions | ICANWK501A Plan, implement and test enterprise communication solutions | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK501 Plan, implement and test enterprise communication solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and implement an enterprise mail system
- plan and implement an enterprise web portal or content management system
- design and implement business collaboration tools
- configure network, servers and application software to provide optimal performance, meet security requirements and avoid known conflicts
- configure applications to meet customisation requirements
- monitor and test the performance of aspects of the solution.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe the features of a mail server application
- describe business collaboration tools
- explain the purpose and use of web portal or content management software
- outline the importance of administering database servers to support portal applications
- describe the key principles of data protection, including:
  - backup and restoration
  - firewall configuration
  - security and authentication practices
- describe the important features of administering a network, including:
  - load balancing for applications
  - server or directory administration
  - infrastructure


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- web server administration.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- site where server applications can be installed
- networked servers
- workstations
- switch
- wide area network (WAN) service point of presence.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK502 Implement secure encryption technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure secure file encryption is selected, implemented and monitored on a computer network or local environment.

It applies to individuals working as information and communications technology (ICT) professionals who may select, implement and monitor a secure encryption environment in any size enterprise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine encryption methods | 1.1 Analyse enterprise data security requirements<br>1.2 Create a new or review an existing security plan to determine appropriate encryption methods<br>1.3 Review a range of encryption technologies and rank the most appropriate options<br>1.4 Assess the costs associated with each encryption option<br>1.5 Document encryption options and costs, and forward to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | appropriate person for decision |
| 2. Implement encryption | 2.1 Apply encryption technologies to the enterprise system<br>2.2 Analyse effect of encryption technologies on user roles and responsibilities<br>2.3 Inform user of new encryption technologies and the effect it has on their responsibilities |
| 3. Monitor encryption | 3.1 Analyse implementation of the encryption technologies, confirming function and performance<br>3.2 Review help desk records for problems concerning implementation and take appropriate action<br>3.3 Review system logs for encryption issues and compromises<br>3.4 Document encryption issues and compromises, and notify appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.2 | • Gathers, interprets and analyses technical data to determine security requirements and help desk records to interpret technical compromises |
| Writing | 1.1, 1.3, 1.5, 3.4 | • Prepares workplace documentation that incorporates an evaluation of technical information and specialised and cohesive language in a format and style appropriate to a specific audience |
| Oral Communication | 2.3, 3.4 | • Articulates requirements and responsibilities clearly and distinctively, using technical language appropriate to audience and environment |
| Numeracy | 1.4 | • Uses mathematical formulas and calculations to undertake a cost-benefit analysis |
| Navigate the world of work | 1.1 | • Recognises and follows explicit and implicit protocols, and meets expectations associated with own role |
| Interact with | 1.5 | • Selects the appropriate form, channel and mode of |


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| | | |
|---|---|---|
| others | | communication for a specific purpose relevant to own role |
| Get the work done | 1.3, 2.1, 2.2, 3.1-3.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to determine data security threats, risks and countermeasures<br>• Manages and maintains data securely and actively monitors technology, notifying others if security becomes compromised<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks<br>• Initiates standard procedures when responding to familiar problems to troubleshoot, debug and correct connectivity and security issues |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK502 Implement secure encryption technologies | ICANWK502A Implement secure encryption technologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK502 Implement secure encryption technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse enterprise data security requirements
- create or review existing security plan to determine the appropriate encryption methods
- rank and document appropriate encryption methods
- implement encryption systems and inform users of any impacts
- monitor and document encryption issues and compromises, and notify appropriate person.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain certificate related infrastructure (certificate authorities, registration authorities, repository services)
- summarise common asymmetric key algorithms and their usage
- explain common symmetric key algorithms and their usage, such as:
  - advanced encryption standard (AES)
  - data encryption standard (DES)
  - triple data encryption algorithm (triple DES)
  - Blowfish
- explain encryption strength
- summarise various encryption types, including public key, secret key, hash key
- summarise the functions and features of:
  - access control permissions
  - digital signatures
  - symmetric encryption, asymmetric encryption and one-way encryption


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  - timestamps
- explain one-way message digests, such as message digest algorithm 5 (MD5) and secure hash algorithm (SHA)
- explain public key infrastructure (PKI), pretty good privacy (PGP) and GNU Privacy Guard (GnuPG)
- outline replay security
- outline possible sources of security threats, including eavesdropping, data interception, data corruption, data falsification and authentication issues
- explain transmission control protocol or internet protocol (TCP/IP) protocols and applications
- summarise security problems and challenges that arise from organisational issues
- outline wired equivalent privacy (WEP), Wi-Fi protected access (WPA) and Wi-Fi protected access 2 (WPA2).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where encryption installation may be conducted
- a live network
- servers
- encryption software
- encryption tools.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK503 Install and maintain valid authentication processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, develop, install and maintain authentication processes to reduce the vulnerability of the system.

It applies to individuals working as middle managers such as information security managers, network engineers or security analysts, who are responsible for implementing and monitoring the organisational security management system.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine authentication requirements | 1.1 Determine user and enterprise security requirements with reference to enterprise security plan<br>1.2 Identify and analyse authentication options according to user and enterprise requirements<br>1.3 Select the most appropriate authentication and authorisation processes |
| 2. Configure | 2.1 Create an authentication realm and reuse as required to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| authentication software or tools | protect different areas of server<br>2.2 Add users and authorisation rules to new realm according to business needs<br>2.3 Describe user attributes and user attribute set-up<br>2.4 Set up an authentication filter and authorisation parameters on the appropriate server according to business requirements |
| 3. Apply authentication methods | 3.1 Develop or obtain authentication protocols as required<br>3.2 Develop and distribute related methods to users according to business need<br>3.3 Brief user on authentication system and their responsibilities according to enterprise security plan<br>3.4 Apply authentication system to network and user according to system product requirements<br>3.5 Record and store permission and configuration information in a secure central location |
| 4. Monitor authentication system | 4.1 Review the authentication system according to user and enterprise security and quality of service requirements<br>4.2 Ensure ongoing security monitoring, using incident management and reporting processes, according to enterprise security plan<br>4.3 Adjust authentication system if required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.3, 4.2 | • Gathers, interprets and analyses technical data to determine requirements according to user and enterprise plans |
| Writing | 2.3, 3.1, 3.2, 3.5 | • Prepares workplace documentation that incorporates an evaluation of technical information and specialised and cohesive language in a format and style appropriate for a specific audience |


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| | | |
|---|---|---|
| Oral Communication | 1.2, 3.1-3.3, 4.2 | • Uses active listening, observational and questioning techniques in order to identify information and confirm, clarify or revise understanding<br>• Initiates and contributes to a range of formal and informal conversations relevant to role, responding, clarifying, explaining and expanding on information as required |
| Navigate the world of work | 1.1, 3.3 | • Recognises and follows explicit and implicit protocols, and meets expectations associated with own role |
| Get the work done | 1.1, 1.3, 2.1, 2.2, 2.4, 3.4, 3.5, 4.1-4.3 | • Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals and begins to recognise strategic and operational applications<br>• Uses digital technologies and systems safely and securely when implementing and monitoring a system with a growing awareness of the permanence and transparency of all activities<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to plan control methods and systems processes<br>• When dealing with complex issues such as authentication failure and security incidents may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues and using lateral thinking processes to generate possible solutions<br>• Makes decisions in relatively complex situations, taking a range of factors into consideration |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK503 Install and maintain valid authentication processes | ICANWK503A Install and maintain valid authentication processes | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK503 Install and maintain valid authentication processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design and deploy authentications solutions to the business technology environment and business needs
- configure authentication software or tools
- monitor and test authentication process after implementation
- ensure authentication solutions are current.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the problems and challenges dealing with organisational authentication issues, including resource accounting through authentication
- discuss common virtual private network (VPN) issues, including:
  - quality of service (QoS) considerations
  - bandwidth
  - dynamic security environment
  - function and operation of VPN concepts
- outline authentication adaptors
- summarise biometric authentication adaptors
- summarise digital certificates, such as VeriSign, X.509, and SSL
- explain the function and operation of authentication controls including:
  - passwords
  - personal identification numbers (PINs)
  - smart cards


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  - biometric devices
  - other authentication protocols
- outline network authentication services, such as Kerberos and NT LAN Manager (NTLM)
- summarise the features of common password protocols, such as:
  - challenge handshake authentication protocol (CHAP)
  - challenge phrases
  - password authentication protocol (PAP)
  - remote authentication dial-in user service (RADIUS) authentication
- describe the principles of security tokens.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site or prototype where network authentication may be implemented and managed
- network support tools currently used in industry
- organisational security policies related to authentication
- manufacturers recommendations
- current authentication standards, including biometric authentication adaptors.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK504 Design and implement an integrated server solution

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and implement a network authentication model that allows users to log in using the same user credentials between multiple operating system platforms to provide a secure method of sharing files on the same network.

It applies to individuals employed in network or systems engineering roles where they are required to support multiple operating systems in a complex computing environment of medium-to-large organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for the design and installation of an integrated server solution | 1.1 Consult with client and key stakeholders to identify server integration requirements<br>1.2 Prepare for work, according to site specific safety requirements and enterprise occupational health and safety (OHS) processes and procedures<br>1.3 Arrange access to site and advise client of deployment and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | potential down times<br>1.4 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite |
| 2. Plan and design integrated server solution | 2.1 Research and review authentication methods available for integration of network operating systems<br>2.2 Select appropriate authentication methods and protocols<br>2.3 Research redundancy and replication requirements for selected authentication model<br>2.4 Produce the integrated server design, including authentication, file sharing and security |
| 3. Install and configure the integrated server solution | 3.1 Implement integrated authentication solution<br>3.2 Implement integrated file sharing solution<br>3.3 Configure workstations for integrated environment<br>3.4 Implement security for the integrated server environment |
| 4. Test and reconfigure network servers | 4.1 Test server for benchmarking against client specification and requirements according to test plan, and record outcomes<br>4.2 Analyse error report and make changes as required<br>4.3 Use troubleshooting tools and techniques to diagnose and correct integration problems<br>4.4 Test required changes or additions<br>4.5 Validate changes or additions against specifications |
| 5. Complete and document network design and installation | 5.1 Make and document server configuration and operational changes<br>5.2 Complete client report and notification of server status<br>5.3 Clean up and restore worksite to client's satisfaction<br>5.4 Secure sign-off from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 2.1, 2.3, 4.1, 4.2, 4.5 | • Gathers, interprets and analyses enterprise procedures, manuals and specifications to determine requirements |
| Writing | 2.4, 4.1, 5.1, 5.2 | • Prepares workplace documentation that incorporates an evaluation of technical information and specialised and cohesive language in a format and style appropriate for a specific audience |
| Oral Communication | 1.1, 1.3, 1.4 | • Uses active listening, observational and questioning techniques to identify information and confirm, clarify or revise understanding |
| Numeracy | 4.1, 4.2, 4.4, 4.5 | • Analyses numerical information to take measurements, interpret results and evaluate performance and interoperability of network |
| Navigate the world of work | 1.2 | • Appreciates the implications of legal and regulatory responsibilities related to own work |
| Interact with others | 5.4 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.3, 2.1, 2.2, 2.4, 3.1-3.4, 4.1-4.5, 5.1, 5.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to plan, prioritise and monitor own work<br>• Understands the key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology<br>• Initiates standard procedures and contingency management skills when responding to familiar problems to adapt configuration procedures to requirements of network and reconfigure, depending on differing operational contingencies, risk situations and environments<br>• Makes a range of decisions in relatively complex situations, taking a range of constraints into account |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK504 Design and implement an integrated server solution | ICANWK504A Design and implement an integrated server solution | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK504 Design and implement an integrated server solution

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce design documents to integrate multiple server operating systems for authentication, file sharing and security
- install and configure the integrated solution according to the produced design
- monitor and test the solution
- troubleshoot integration problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain authentication methods and protocols, such as lightweight directory access protocol (LDAP) and Kerberos
- summarise compatibility issues and resolution procedures
- outline current network operating systems (NOS)
- describe current server applications, compatibility issues and resolution procedures
- list documentation required for networks
- outline error and event logging and reporting
- summarise file and print management
- explain file system security
- outline high availability options for servers
- summarise network file systems and shares
- outline network service configuration and security
- summarise operating system help and support utilities
- list and describe performance monitoring tools and tuning options


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- describe the process of managing a project, including:
  - process or task management
  - task scheduling utilities
- explain troubleshooting tools and techniques, including network diagnostic utilities
- describe user authentication and directory services.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where server installation may be conducted
- relevant server specifications such as:
  - multiple operating system platforms
  - cabling
- networked (LAN) computers
- server diagnostic software
- switching equipment
- client requirements
- workstations
- relevant regulatory documentation that affects installation activities.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK505 Design, build and test a network server

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, install and test a server in a complex network environment.

It applies to individuals who are employed in network or systems engineering roles, such as network engineers who are required to design and build network servers in a complex computing environment of medium-to-large organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and design network servers to meet business requirements | 1.1 Consult with client and key stakeholders to identify requirements<br>1.2 Assess business problems, opportunities, scope, objectives and budget, confirming details with appropriate person<br>1.3 Analyse and document data migration requirements<br>1.4 Review requirements to identify network server specifications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Produce detailed documentation for the design and configuration of the network services, server applications, security and redundancy<br>1.6 Prototype design and update documentation as necessary<br>1.7 Produce installation checklists as part of the quality assurance process<br>1.8 Develop the test plan to ensure that the system meets client requirements, performance standards and quality expectations<br>1.9 Obtain client sign-off for the design report |
| 2. Prepare for network server installation | 2.1 Prepare for work according to site specific safety requirements and enterprise workplace health and safety (WHS) processes and procedures<br>2.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>2.3 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite<br>2.4 Back up local data in preparation for installation |
| 3. Build and configure the servers according to design | 3.1 Install network operating system to design specifications using installation checklists<br>3.2 Install additional tools or third-party software applications as required by the design<br>3.3 Patch the operating system and applications to ensure maximum security and reliability<br>3.4 Configure network services and applications<br>3.5 Implement security design to prevent unauthorised access to system<br>3.6 Reconnect and reconfigure connectivity devices<br>3.7 Configure update services to provide automatic updates for operating system and applications<br>3.8 Restore local data to new server<br>3.9 Implement backup and recovery methods to enable restoration capability in the event of a disaster |
| 4. Test and reconfigure network servers | 4.1 Test server for benchmarking against client specification and requirements according to test plan, and record outcomes<br>4.2 Analyse the error report and make changes as required<br>4.3 Use troubleshooting tools and techniques to diagnose and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | correct server problems<br>4.4 Test required changes or additions<br>4.5 Validate changes or additions against specifications |
| 5. Complete and document network design and installation | 5.1 Make and document server configuration and operational changes<br>5.2 Complete client report and notify of server status<br>5.3 Clean up and restore worksite to client's satisfaction<br>5.4 Secure sign-off from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 3.1, 3.2, 4.1, 4.2, 4.5 | • Gathers and interprets enterprise procedures, manuals and specifications to determine requirements |
| Writing | 1.3, 1.5, 1.6, 4.1, 5.1, 5.2 | • Prepares workplace documentation that incorporates an evaluation of technical information and specialised language in a format and style appropriate for a specific audience |
| Oral Communication | 1.1, 1.2, 2.2, 2.3, 5.2 | • Uses active listening, observational and questioning techniques in order to identify information and confirm, clarify or revise understanding<br>• Articulates requirements clearly and distinctively, using technical language appropriate to audience and environment |
| Numeracy | 1.2, 4.2 | • Analyses numerical information to take measurements, interpret results and evaluate performance and interoperability of network<br>• Uses mathematical formulas and calculations to estimate and plan project costs within a defined budget |
| Navigate the world of work | 2.1, 2.2, 5.3 | • Understands the nature and purpose of own role and associated responsibilities, and how it |


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| | | |
|---|---|---|
| | | contributes to the work of others in the immediate work context<br>• Keeps up to date with current legislation and regulations relevant to own rights and responsibilities, and considers the implications of these when planning and undertaking work |
| Interact with others | 1.9, 5.4 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.2, 1.3, 1.7, 1.8, 2.4, 3.1- 3.9, 4.1-4.5, 5.1 | • Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals and begins to recognise strategic and operational applications<br>• Uses digital technologies and systems safely and securely when implementing and monitoring a system, with a growing awareness of the permanence and transparency of all activities<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to plan, prioritise and monitor own work<br>• Uses formal and informal processes to monitor implementation of solutions and reflect on outcomes<br>• Makes decisions in relatively complex situations, taking a range of factors into consideration |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK505 Design, build and test a network server | ICANWK505A Design, build and test a network server | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK505 Design, build and test a network server

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce a design report for a server (or servers) with complex user and network service requirements
- install and configure the server according to the produced design
- monitor and test the server
- troubleshoot server and network failures
- configure a wide range of server network and security services, including:
  - domain name system (DNS)
  - dynamic host configuration protocol (DHCP)
  - web and proxy mail
  - file transfer protocol (FTP)
  - firewall.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the key features of current network operating systems (NOS)
- identify and describe current server applications compatibility issues and resolution procedures
- discuss network service configuration, including:
  - domain name system (DNS)
  - dynamic host configuration protocol (DHCP)
  - file transfer protocol (FTP)
  - mail


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    - network time protocol (NTP)
    - proxy
    - server messages block (SMB)
    - web
- describe common network service management, including:
    - start
    - stop
    - restart
    - start on boot
- identify and describe network service security features, including server firewall configuration
- identify and summarise troubleshooting tools and techniques, including network diagnostic utilities
- describe common operating system installation and operation issues, including:
    - installation media:
        - CD
        - DVD
        - universal serial bus (USB)
        - boot disk
        - network and script (automated install)
        - deployment services
    - boot process and diagnosing boot failures
    - operating system rescue environment
    - operating system help and support utilities
    - performance monitoring tools and tuning options
    - compatibility issues and resolution procedures
    - high availability options for servers
    - file and print management
- describe data security and storage measures required on a networked server, including:
    - user authentication and directory services
    - best practice procedures for implementing backup and recovery
    - error and event logging and reporting
    - storage options, including file systems and disk partitioning schemes
- describe the process of managing a project, including:
    - documentation skills required for networks
    - process or task management
    - task scheduling utilities.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where server installation may be conducted
- relevant server specifications
- cabling
- networked (LAN) computers
- server diagnostic software
- switching equipment
- client requirements
- wide area network (WAN) service point of presence
- workstations
- relevant regulatory documentation that affects installation activities.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use appropriate tools, equipment, software and protocols to install, operate, and troubleshoot medium enterprise switches.

It applies to individuals with excellent communication skills who are working as help desk technicians and network support technicians.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install medium enterprise WAN links | 1.1 Prepare for given work according to legislation, work health and safety (WHS) codes, regulations and standards<br>1.2 Arrange access to the site according to required procedure<br>1.3 Review existing network design documentation to ensure it is current and complete<br>1.4 Select network elements required to be installed to meet technical requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Contact vendors and service suppliers to obtain specifications and availability of identified components<br>1.6 Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to client<br>1.7 Liaise with appropriate person to obtain approval for the plans, including security clearance and timing |
| 2. Configure WAN links | 2.1 Determine different methods for connecting to a wide area network (WAN)<br>2.2 Configure and verify a basic serial WAN configuration<br>2.3 Configure and verify at least two WAN protocols<br>2.4 Determine virtual private network (VPN) technology<br>2.5 Configure and verify a site-to-site VPN<br>2.6 Determine asymmetric digital subscriber line (ADSL) technology<br>2.7 Configure and verify an ADSL connection |
| 3. Configure and verify IP services on a router | 3.1 Determine the operation and benefits of using dynamic host configuration protocol (DHCP)<br>3.2 Configure and verify DHCP operation on a router<br>3.3 Implement static and dynamic addressing services for hosts in a local area network (LAN) environment<br>3.4 Determine the basic operation of network address translation (NAT)<br>3.5 Configure NAT for given network requirements<br>3.6 Implement and verify NAT in a medium sized enterprise branch office network<br>3.7 Describe the basic operation and configuration of internet protocol version 6 (IPv6) |
| 4. Secure a network using router services | 4.1 Determine the purpose and types of access control lists (ACLs)<br>4.2 Configure and apply ACLs based on network filtering requirements<br>4.3 Configure and apply ACLs to provide secure access to the router |
| 5. Troubleshoot medium | 5.1 Troubleshoot WAN implementation issues |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| enterprise WAN links | 5.2 Rectify WAN problems<br>5.3 Document solutions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3 | • Gathers, interprets and analyses technical information to determine requirements according to client needs |
| Writing | 1.5, 1.6, 2.1, 4.1, 5.3 | • Prepares workplace documentation which incorporates an evaluation of technical information and specialised and cohesive language in a format and style appropriate for a specific audience |
| Oral Communication | 1.5, 1.7, 2.1, 2.4, 2.6, 3.1, 3.4, 3.7, 4.1 | • Uses specific and relevant language to clearly describe and explain a range of technical, operational and business related matters with internal and external personnel<br>• Uses listening and questioning skills to confirm understanding for requirements, participates in a verbal exchange of ideas/solutions and uses appropriate, detailed and clear language to address key personnel and to disseminate information |
| Numeracy | 2.2, 2.3, 2.5, 2.7, 3.2, 3.5, 4.2, 4.3 | • Analyses numerical information to take measurements, interpret results and evaluate performance and interoperability of network |
| Navigate the world of work | 1.1 | • Appreciates the implications of legal and regulatory responsibilities related to own work |
| Get the work done | 1.1, 1.2, 1.4, 1.6, 2.2, 2.3, 2.5, 2.7, 3.2, 3.3, 3.5, 3.6, 4.2, 4.3, 5.1, 5.2 | • Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and begins to recognise strategic and operational applications<br>• Uses digital technologies and systems safely and securely when implementing and monitoring a system, with a growing |


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| | | |
|---|---|---|
| | | awareness of the permanence and transparency of all activities<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to plan, prioritise and monitor own work<br>• Makes decisions in relatively complex situations, taking a range of factors into consideration<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues, and lateral thinking processes to generate possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network | ICANWK506A Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and prepare for the wide area network (WAN) link installation task
- install and configure WAN links
- configure and troubleshoot the following internet protocol (IP) services:
  - network address translation (NAT)
  - dynamic host configuration protocol (DHCP)
  - access control lists (ACLs)
  - configure and troubleshoot ADSL links
  - configure and troubleshoot VPNs
- document solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the basic operation and configuration of internet protocol version 6 (IPv6)
- identify and describe typical router setup and operations, including:
  - ACLs
  - router calling line identification (CLI) configuration
  - router debug commands
- explain typical problems and solutions with WAN link installations.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- WAN service point of presence.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK507 Install, operate and troubleshoot medium enterprise routers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use the appropriate tools, equipment, software and protocols to install, operate and troubleshoot, medium enterprise routers.

It applies to individuals working as network technicians, network administrator and network support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install a medium enterprise router | 1.1 Prepare for given work, according to legislation, workplace health and safety (WHS), codes, regulations and standards<br>1.2 Arrange the access to the network facility, according to the required procedures<br>1.3 Review the existing network design documentation to ensure that it is current and complete<br>1.4 Select the network elements required to be installed, to meet |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the technical requirements<br>1.5 Contact vendors and service suppliers to obtain the specifications, and determine the availability of the identified components<br>1.6 Develop plans, with prioritised tasks and contingency arrangements, for the installation of components with minimum disruptions to the client<br>1.7 Liaise with the appropriate person to obtain approval for the plans, including security and timing |
| 2. Configure the basic router operation | 2.1 Determine the basic routing requirements<br>2.2 Determine the router operating parameters<br>2.3 Select the appropriate media, cables, ports, and connectors to connect routers to other network devices and hosts<br>2.4 Access and use the router to set basic parameters<br>2.5 Upgrade the firmware on a router<br>2.6 Save and back up the router configuration files<br>2.7 Implement basic router security<br>2.8 Configure the static and default routes |
| 3. Configure, and verify, the dynamic classless routing protocols | 3.1 Determine the appropriate classless addressing scheme, using variable length subnet mapping (VLSM) and summarisation to satisfy addressing requirements in a local area network (LAN) or a wide area network (WAN) environment<br>3.2 Calculate and apply an addressing scheme, including a VLSM internet protocol (IP) addressing design, to a network<br>3.3 Configure and verify, the classless routing protocols |
| 4. Apply sound troubleshooting processes to determine network connectivity | 4.1 Troubleshoot the device configuration and network connectivity using basic utilities<br>4.2 Identify and correct, common problems associated with IP addressing and host configurations<br>4.3 Perform basic troubleshooting principles to verify the network's operation |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3 | • Gathers, interprets and analyses technical and regulatory information, to determine the requirements according to client needs |
| Writing | 1.5 | • Uses factual information and industry-related terminology, to convey information to internal and external personnel on technical, operational and business-related matters |
| Oral Communication | 1.5, 1.7, 2.1, 2.2 | • Uses specific and relevant language to clearly describe and explain, a range of technical, operational and business-related matters, with internal and external personnel<br>• Uses listening and questioning skills to confirm understanding for the requirements, participates in a verbal exchange of ideas/solutions, and uses appropriate, detailed and clear language to address key personnel, and to disseminate information |
| Numeracy | 3.2, 3.3 | • Analyses numerical information to take measurements, interpret results and evaluate the performance, and interoperability, of the network |
| Navigate the world of work | 1.1 | • Appreciates the implications of legal and regulatory responsibilities related to own work |
| Get the work done | 1.1, 1.2, 1.4, 1.6, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3 | • Reflects on the ways in which digital systems and tools are, or could be, used to achieve work goals, and begins to recognise strategic and operational applications<br>• Uses digital technologies and systems safely and securely, when implementing and monitoring a system, with a growing awareness of the permanence and transparency of all activities<br>• Uses a combination of formal, logical planning processes, and an increasingly intuitive understanding of context to plan, prioritise and monitor own work, and coordinate processes, in liaison with others<br>• Makes decisions in relatively complex |


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| | | |
|---|---|---|
| | | situations, taking a range of factors into consideration<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues, and uses lateral thinking processes to generate possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK507 Install, operate and troubleshoot medium enterprise routers | ICANWK507A Install, operate and troubleshoot medium enterprise routers | Updated to meet Standards for Training Packages.<br><br>Minor changes to the wording of Element 4, and some Performance Criteria for clarity. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK507 Install, operate and troubleshoot medium enterprise routers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and prepare for the installation of an enterprise router
- design a classless internet protocol (IP) addressing scheme, to suit requirements
- install, configure and test the network elements, to ensure interoperability within the network
- apply network topologies, routing and security protocols
- apply solutions, and troubleshoot any defined network problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the basic routing concepts for small enterprise network switches and routers
- outline classless routing protocols, including:
  - enhanced interior gateway routing protocol (EIGRP)
  - open shortest path first (OSPF)
  - routing information protocol (RIPv2)
- summarise debug commands
- explain internet protocol version 4 (IPv4)
- summarise the purpose, and basic operation, of protocols in the open system interconnection (OSI) and transmission control protocol, or internet protocol (TCP/IP), models
- explain the router calling line identification (CLI) configuration.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where network installation may be conducted
- enterprise routers and operating systems
- hardware and software
- the organisational guidelines
- computers.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK508 Install, operate and troubleshoot medium enterprise switches

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use appropriate tools, equipment, software and protocols to install, operate, and troubleshoot medium enterprise switches.

It applies to individuals working as help desk technicians and network support technicians.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install a medium enterprise switch | 1.1 Prepare for given work according to legislation, workplace health and safety (WHS), codes, regulations and standards<br>1.2 Arrange access to the site according to required procedure<br>1.3 Review existing network design documentation to ensure it is current and complete<br>1.4 Select the network elements required to be installed to meet the technical requirements<br>1.5 Contact vendors and service suppliers to obtain |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | specifications and availability of identified components<br>1.6 Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to client<br>1.7 Liaise with appropriate person to obtain approval for the plans, including security clearance and timing |
| 2. Configure basic switch operation | 2.1 Determine network segmentation, basic traffic management and basic switching requirements<br>2.2 Perform, save and verify initial switch configuration tasks<br>2.3 Select the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts<br>2.4 Perform, save and verify initial switch configuration tasks<br>2.5 Upgrade firmware on a switch<br>2.6 Save and back up switch configuration files<br>2.7 Implement basic switch security |
| 3. Configure and verify advanced switching functions | 3.1 Determine enhanced switching technologies<br>3.2 Configure and verify virtual local area networks (VLANs)<br>3.3 Configure and verify trunks between switches<br>3.4 Configure and verify inter-VLAN routing<br>3.5 Configure and verify spanning tree protocol (STP) and rapid spanning tree protocol (RSTP) operation |
| 4. Troubleshoot medium enterprise switches | 4.1 Troubleshoot device configuration and network connectivity using basic utilities<br>4.2 Identify and resolve common switched network issues |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3 | • Gathers, interprets and analyses technical and regulatory information to determine requirements according to client needs |


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| | | |
|---|---|---|
| Writing | 1.6 | • Uses factual information and industry-related terminology to convey information to internal and external personnel on technical, operational and business related matters |
| Oral Communication | 1.5, 1.7, 2.1, 3.1 | • Uses active listening, observational and questioning techniques to identify information and confirm, clarify or revise understanding<br>• Articulates requirements clearly and distinctively, using technical language appropriate to audience and environment |
| Numeracy | 3.2-3.5 | • Analyses numerical information to take measurements, interpret results and evaluate performance and interoperability of network |
| Navigate the world of work | 1.1 | • Appreciates the implications of legal and regulatory responsibilities related to own work |
| Get the work done | 1.1, 1.2, 1.4, 1.6, 2.2-2.7, 3.2-3.5, 4.1, 4.2 | • Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and begins to recognise strategic and operational applications<br>• Uses digital technologies and systems safely and securely when implementing and monitoring a system, with a growing awareness of the permanence and transparency of all activities<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to plan, prioritise and monitor own work and coordinate processes in liaison with others<br>• Makes decisions in relatively complex situations, taking a range of factors into consideration<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues, and uses lateral thinking processes to generate possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence unit** |
|---|---|---|---|
| ICTNWK508 Install, | ICANWK508A Install, | Updated to meet | Equivalent |


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| Code and title current version | Code and title previous version | Comments | Equivalence unit |
|---|---|---|---|
| operate and troubleshoot medium enterprise switches | operate and troubleshoot medium enterprise switches | Standards for Training Packages | unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK508 Install, operate and troubleshoot medium enterprise switches

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare for the installation of an enterprise switch
- install, configure and test network elements to ensure interoperability within the network
- apply network topologies, protocols and security issues
- apply solutions and troubleshoot defined network problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe switches and their operation
- describe the installation requirements of switches, including:
  - debug commands
  - routing between virtual local area networks (VLANs)
  - spanning tree protocol (STP)
  - switch calling line identification (CLI) commands
  - switch security, including:
    - port deactivation
    - port security
    - secure shell (SSH)
  - advanced switching technologies
  - common network switching issues
- identify and describe the different types of network and related equipment
- outline the types of documentation required when installing switches.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where network installation may be conducted
- enterprise switches and operating systems
- equipment specifications
- hardware and software
- organisational guidelines.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK509 Design and implement a security perimeter for ICT networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to build a high performance, high security, failure resistant security perimeter, for an enterprise information and communications technology (ICT) network.

It applies to individuals with excellent ICT expertise who are working as middle managers, including information security managers, network engineers, network technicians and security analysts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and design firewall solution | 1.1 Determine level and nature of security needed to meet enterprise requirements<br>1.2 Identify security threats<br>1.3 Research available perimeter security options<br>1.4 Design security perimeter to meet identified enterprise |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements |
| 2. Configure perimeter to secure network | 2.1 Deploy perimeter devices according to design<br>2.2 Configure perimeter topology<br>2.3 Configure basic functionality of devices to allow access<br>2.4 Configure advanced functions |
| 3. Plan, design and configure network devices to provide secure fallover and redundancy | 3.1 Back up device configuration<br>3.2 Design and configure perimeter to enable continuity of service during upgrade of devices<br>3.3 Design and configure perimeter to enable continuity of service in the event of device failure |
| 4. Plan, design and configure a VPN solution | 4.1 Configure perimeter for site-to-site virtual private networks (VPNs)<br>4.2 Configure perimeter as a remote access VPN server<br>4.3 Configure perimeter to allow VPN tunnel forwarding<br>4.4 Diagnose and resolve VPN connectivity issues |
| 5. Test and verify design performance | 5.1 Test functionality of basic features<br>5.2 Test functionality of advanced features<br>5.3 Perform penetration testing to verify that the perimeter meets security requirements<br>5.4 Monitor perimeter device performance<br>5.5 Monitor security breaches<br>5.6 Document test results and report to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.4 | • Gathers, interprets and analyses technical and enterprise information to determine requirements according to client needs |


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| | | |
|---|---|---|
| Writing | 1.4, 3.2, 3.3, 5.6 | • Uses factual information and industry related terminology to convey complex technical information, and notes security breaches for client records to clients on technical, operational and business related matters |
| Oral Communication | 1.1, 5.6 | • Uses active listening, observational and questioning techniques in order to identify information and confirm, clarify or revise understanding<br>• Reports test results clearly and distinctively, using technical language appropriate to audience and environment |
| Numeracy | 2.3, 2.4, 3.2, 3.3, 4.1-4.3, 5.3 | • Selects from and applies an expanding range of mathematical and problem solving strategies to design and configure advanced features of perimeter devices and an integrated VPN solution |
| Get the work done | 1.1, 1.2, 2.1-2.4, 3.1-3.3, 4.1-4.4, 5.1- 5.5 | • Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and begins to recognise strategic and operational applications<br>• Uses digital technologies and systems safely and securely when implementing and monitoring a system, with a growing awareness of the permanence and transparency of all activities<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to plan, prioritise and monitor own work, and coordinate processes in liaison with others<br>• Makes decisions in relatively complex situations, taking a range of factors into consideration<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to meet security requirements and resolve other technical problems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK509 Design and implement a security | ICANWK509A Design and implement a security | Updated to meet Standards for | Equivalent unit |


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| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| perimeter for ICT networks | perimeter for ICT networks | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK509 Design and implement a security perimeter for ICT networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify threats to perimeter security
- develop design for a secure perimeter
- deploy perimeter to meet security requirements
- design and configure advanced features of perimeter devices to provide additional services
- design and configure an integrated VPN solution
- conduct exhaustive testing of perimeter.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe emerging security issues and the need for security policies
- describe the security perimeter issues related to networks, including:
  - auditing and penetration testing techniques
  - capabilities of software and hardware perimeter solutions
  - logging analysis techniques
  - organisational network infrastructure
  - security technologies according to perimeter design
  - weaknesses of installed perimeter design.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- site or prototype where perimeter security may be implemented and managed
- perimeter devices
- organisational security requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK510 Develop, implement and evaluate system and application security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop, implement and evaluate information security in an information and communications technology (ICT) system or application during the system development life cycle (SDLC), prior to the operations and maintenance phase.

It applies to individuals with excellent information and communications technology (ICT) expertise who are working as network managers and are required to handle system and application security from the development phase through implementation to evaluation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop system and application security | 1.1 Identify enterprise ICT system or application security policies<br>1.2 Identify security requirements for the ICT system or application<br>1.3 Write an ICT system or application security plan according |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | to the enterprise and ICT system or application security policies<br>1.4 Identify standards against which to engineer the ICT system or application<br>1.5 Identify criteria for performing risk based audits against the ICT system or application<br>1.6 Develop processes and procedures to mitigate the introduction of vulnerabilities during the engineering process<br>1.7 Integrate applicable information security requirements, controls, processes, and procedures into ICT system and application design specifications according to established requirements |
| 2. Implement system and application security | 2.1 Execute enterprise and ICT system or application security policies<br>2.2 Apply and verify compliance with identified standards against which to engineer the ICT system or application<br>2.3 Perform processes and procedures to mitigate the introduction of vulnerabilities during the engineering process<br>2.4 Perform secure configuration management practices<br>2.5 Validate that the engineered ICT system and application security controls meet the specified requirements<br>2.6 Re-engineer security controls to mitigate vulnerabilities identified during the operations phase<br>2.7 Ensure integration of information security practices throughout the SDLC process<br>2.8 Document ICT system or application security controls addressed within the system<br>2.9 Practise secure coding |
| 3. Evaluate system and application security | 3.1 Review new and existing risk management technologies to achieve an optimal enterprise risk posture<br>3.2 Review new and existing ICT security technologies to support secure engineering across the SDLC phases<br>3.3 Continually assess effectiveness of the information system controls based on risk management practices and procedures<br>3.4 Assess and evaluate system compliance with corporate policies and architectures<br>3.5 Assess system maturation and readiness for promotion to the production stage |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 3.6 Collect lessons learned from integration of information security into the SDLC and use to identify improvement actions<br>3.7 Collect, analyse and report performance measures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.6 | • Builds on prior knowledge and experience to clarify, extend understanding and contribute to ongoing organisational improvement |
| Reading | 1.1-1.4, 1.7, 2.2, 3.4, 3.7 | • Gathers, interprets and analyses technical and regulatory information to determine requirements according to client needs |
| Writing | 1.3, 2.8, 3.7 | • Uses factual information and industry related terminology to produce workplace documents |
| Oral Communication | 3.7 | • Conveys information about performance measures clearly, using specific and relevant language suitable to audience<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.1, 1.3, 1.7 | • Takes full responsibility for identifying and considering relevant policies and legislative requirements in the development of system security processes |
| Get the work done | 1.5-1.7, 2.1, 2.3-2.7, 2.9, 3.1-3.5 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and reduce risks<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a combination of formal and logical planning processes and an increasingly intuitive |


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| | | |
|---|---|---|
| | | understanding of context to identify relevant information and risks<br>• Makes a range of critical decisions in relatively complex situations, taking a range of constraints into account |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK510 Develop, implement and evaluate system and application security | ICANWK510A Develop, implement and evaluate system and application security | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK510 Develop, implement and evaluate system and application security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create an information and communications technology (ICT) system or application security plan
- implement system and application security
- apply and verify compliance with the identified standards
- practise secure coding practices
- assess and evaluate system compliance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise a range of programming languages, including those used by the organisation
- summarise best practice in application of language syntax rules
- explain data structures
- outline graphical user interfaces (GUIs)
- summarise small-size application development
- identify and summarise the legislation, regulations and codes of practice that impact on network security
- describe the risk assessment process required in evaluating system vulnerabilities, including:
  - risk mitigation
  - security control selection
  - implementation and evaluation process
  - software security standards compliance.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- ICT business specifications
- information on the security environment, including laws and legislation, existing organisational security policies, organisational expertise and knowledge
- possible security environment, which also includes the threats to security that are, or are held to be, present in the environment
- risk analysis tools and methodologies
- ICT security assurance specifications
- application and system scenarios.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK511 Manage network security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement and manage security functions throughout a network.

It applies to individuals with excellent information and communications technology (ICT) expertise who lead the development of strategic reviews of security and provide technical advice, guidance and leadership in resolution of specified problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define a process for designing security | 1.1 Define planning phase for network security design<br>1.2 Define building phase for network security design<br>1.3 Define managing phase for network security design |
| 2. Identify threats to network security | 2.1 Determine why attacks occur<br>2.2 Determine who the attack may come from<br>2.3 Analyse common types of network vulnerabilities |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.4 Determine how attacks occur<br>2.5 Design a threat model to categorise treats |
| 3. Analyse security risks | 3.1 Determine elements of risk management<br>3.2 Determine assets that require protection<br>3.3 Categorise assets and calculate their value to the organisation<br>3.4 Create a risk management plan |
| 4. Create a security design | 4.1 Determine attacker scenarios and threats<br>4.2 Design security measures for network components<br>4.3 Obtain feedback and adjust if required<br>4.4 Develop security policies |
| 5. Design and implement responses to security incidents | 5.1 Design auditing and incident response procedure<br>5.2 Document security incidents<br>5.3 Implement configurations aligned with incident response procedure design<br>5.4 Test and sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 2.5, 3.4, 4.2, 4.4, 5.1, 5.2, 5.4 | • Uses factual information and industry related terminology to develop organisational plans, security policies and document security breaches |
| Oral Communication | 4.3 | • Uses active listening, observational and questioning techniques in order to identify different perspectives and confirm and clarify understanding |
| Numeracy | 3.3 | • Calculates equipment costs in order to assess their business related value |
| Get the work | 1.1-1.3, 2.1-2.4, 3.1-3.3, 4.1, 4.2, | • Demonstrates a sophisticated understanding of principles, concepts, language and practices |


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| | | |
|---|---|---|
| done | 5.3, 5.4 | associated with the digital world and uses these to troubleshoot and reduce risks<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a combination of formal and logical planning processes and an increasingly intuitive understanding of context to plan control methods for managing system security<br>• Makes a range of critical decisions in relatively complex situations, taking a range of constraints into account<br>• Recognises and addresses complex problems, including systems processes and rapid deployment of solutions to problems involving failure and security incidents |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK511 Manage network security | ICANWK511A Manage network security | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK511 Manage network security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify threats to security
- develop risk management plan
- design network security policies
- analyse and plan solutions to compromised networks and design incident response
- evaluate security information and use it to plan suitable control methods and countermeasures
- add network controls, according to system security policies, procedures and risk management plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise and describe common ICT networks and their configuration
- identify and describe network attacks, vulnerabilities and related weaknesses of installed infrastructure, including:
  - security technologies
  - emerging security issues
- identify and describe network security measures, including:
  - auditing and penetration testing techniques
  - logging analysis techniques
  - organisational network infrastructure
  - capabilities of software and hardware solutions
  - general features of emerging security policies, with depth in security procedures


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  - network management and security process controls
- explain network security implementation risk management plans and procedures, including:
  - network security planning
  - implementation
  - cost analysis and budgeting.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site or prototype where network security may be implemented and managed
- network support tools currently used in industry
- organisational security policies, manufacturer recommendations and security standards.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK513 Manage system security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement and manage security on an operational system.

It applies to individuals working in middle management in technical advice, guidance and leadership roles such as security managers and security analysts responsible for implementing and managing the organisations security management system.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse threats to system | 1.1 Evaluate the organisation’s system and verify that it meets enterprise guidelines and policies<br>1.2 Conduct risk analysis on system and document outcomes<br>1.3 Evaluate threats to the system and document findings<br>1.4 Compile and document human interactions with system |
| 2. Determine risk category | 2.1 Conduct a risk assessment on the system and categorise |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | risks<br>2.2 Conduct a risk assessment on human operations and interactions with the system and categorise risks<br>2.3 Match risk plans to risk categories<br>2.4 Determine and plan resources by risk categories |
| 3. Identify appropriate controls | 3.1 Devise and put in place effective controls to manage risk<br>3.2 Design policies and procedures to cover user access of the system<br>3.3 Conduct training in the use of system-related policies and procedures<br>3.4 Monitor high-risk categories at specified periods<br>3.5 Categorise and record system breakdowns |
| 4. Include controls in the system | 4.1 Develop security plan and procedures to include in management system<br>4.2 Develop security recovery plan<br>4.3 Implement system controls to reduce risks in human interaction with the system |
| 5. Monitor system tools and procedures | 5.1 Review and monitor risks and controls, using a management review process<br>5.2 Review risk analysis process based on security benchmarks from vendors, security specialists and organisational reviews<br>5.3 Plan to re-evaluate system and identify new threats and risks |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 5.1, 5.2 | • Gathers, interprets and analyses technical and enterprise information to determine requirements according to client needs |


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| | | |
|---|---|---|
| Writing | 1.2-1.4, 2.1, 2.2, 3.2, 3.5, 4.1, 4.2 | • Prepares information that incorporates a synthesis of knowledge, using information and communications technology (ICT) terminology and cohesive language in a format and style appropriate to a specific audience |
| Navigate the world of work | 1.1 | • Takes full responsibility for identifying and considering relevant policies and procedures when managing a security system |
| Interact with others | 3.3 | • Demonstrates an increasing capacity to manipulate oral, visual and or written formats to achieve a specific purpose with full command of vocabulary relevant to context |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1, 3.4, 4.3, 5.3 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and reduce risks<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a combination of formal and logical planning processes and an increasingly intuitive understanding of context to develop a security plan and a security recovery plan<br>• Makes a range of critical decisions in relatively complex situations, taking a range of constraints into account<br>• Recognises and addresses complex problems involving participation in group solutions and analysis, and resolving issues for a mixed mode environment of people and systems processes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK513 Manage system security | ICANWK513A Manage system security | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK513 Manage system security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- implement and manage security functions on a system
- conduct risk assessment
- set up effective controls to manage risk
- develop security plan and security recovery plan
- monitor risks and controls
- review risk analysis process.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the general features of specific security technologies
- describe risk analysis techniques, with a focus on their general features, and depth in security procedures
- describe the common security requirements of a client's organisation, including:
  - threats
  - security techniques and technologies
- outline systems management and process control in relation to security
- explain systems technologies, including a broad summary of their general features and capabilities.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where system security may be implemented and managed
- use of utility tools currently used in industry
- organisational security policies
- manufacturer recommendations
- security standards.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK514 Model preferred system solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to fit a physical model into the design phase of the methodology.

It applies to individuals working as system designers who are required to model proposed solutions.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review and confirm information requirements and existing models | 1.1 Review information requirements and clarify areas that are not understood<br>1.2 Identify organisational standards for developing models, and check the model development method for consistency with organisational goals<br>1.3 Identify assumptions and incorporate into modelling process<br>1.4 Identify goals and resolve into tasks required to be performed to obtain goals |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Define internal tasks needed to perform identified goals |
| 2. Resolve conflicts and inconsistencies | 2.1 Identify missed opportunities arising from previous and current model development<br>2.2 Identify bottlenecks, overlooked functionalities and other issues, and resolve with client input as required |
| 3. Build and test model | 3.1 Develop model based on existing architecture<br>3.2 Document details of model, according to agreed project or organisational standards<br>3.3 Develop model according to project deliverables and acceptance criteria within determined timeframe and project constraints<br>3.4 Test model against the test plan<br>3.5 Document test data to ensure that test procedures validate performance of the model |
| 4. Ensure that the model represents a workable solution | 4.1 Ensure a consensus view of key information and communications technology (ICT) stakeholders is represented in model<br>4.2 Ensure model is checked by key ICT stakeholders to confirm common knowledge of the model and the proposed solution<br>4.3 Submit model to appropriate person for sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.2, 3.4, 3.5 | • Recognises and interprets technical material and organisational standards to determine job requirements |
| Writing | 3.2, 3.5 | • Develops material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral | 1.1, 2.2 | • Clearly articulates requirements, using relevant language suitable to diverse audiences, and employs |


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| | | |
|---|---|---|
| Communication | | listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.2 | • Takes full responsibility for identifying and considering relevant policies and requirements in the development of preferred system solutions |
| Interact with others | 4.2, 4.3 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.3-1.5, 2.1, 2.2, 3.1-3.4, 4.1 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a combination of formal and logical planning processes and an increasingly intuitive understanding of context to set benchmarks and identify project scope when developing a model<br>• Makes a range of critical decisions in relatively complex situations, taking a range of constraints into account<br>• Recognises and addresses complex problems in systems models and may seek advice from relevant experts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK514 Model preferred system solutions | ICANWK514A Model preferred system solutions | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK514 Model preferred system solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use two or more development tools
- develop specific areas of a system for further information or to confirm a software or hardware direction
- identify opportunities for expansion of the model
- test the model to a test plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the client business domain in relation to the organisational structure
- summarise current industry-accepted hardware and software products and standards
- explain modelling techniques and methodologies
- outline a range of development and test tools
- explain systems development methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry and include access to:

- acceptance criteria
- client requirements
- future organisational business processes


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- organisational and process goals
- project budget
- project deliverables
- standards for model development
- technical specifications
- a test plan.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK515 Develop configuration management protocols

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop administrative and technical procedures throughout the life cycle of a system, network, software and documentation project.

It applies to individuals working in a variety of information and communications technology (ICT) areas who develop and manage tasks that facilitate the development of a system, such as version control and naming standards.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish configuration management requirements | 1.1 Establish identification standards for naming and version control of system, network, software and documentation to align with organisational needs<br>1.2 Establish tools and procedures for the required level of integration into the programming, system or network environment<br>1.3 Determine responsibilities for configuration management |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | within the project and for ongoing support, including approval of changes<br>1.4 Determine the appropriate points for configuration of particular items |
| 2. Establish control mechanisms | 2.1 Establish methods for identification and recording of change requests in line with organisational guidelines<br>2.2 Establish acceptance criteria, test and acceptance processes and processes for approval of change requests in line with organisational guidelines<br>2.3 Establish security, access and management control criteria and quality benchmarks<br>2.4 Determine necessary audit trails and alerts for variations or non-conformance |
| 3. Establish monitoring mechanisms | 3.1 Establish mechanisms to identify software status throughout the software life cycle, or the status of the system or network during upgrading or reconfiguration<br>3.2 Determine management of records and status reports, including the history of baselines and their links to backups<br>3.3 Define target audiences and determine the level of detail required in the status reports<br>3.4 Integrate configuration management into general project management processes for monitoring and control purposes<br>3.5 Document control and monitoring mechanisms |
| 4. Manage the release of the product to clients | 4.1 Determine physical and functional completeness of items prior to release<br>4.2 Determine requirements for formal control of software products and documentation<br>4.3 Determine policies for retention of baseline and master copies in line with safety, security and legislative requirements and organisational guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.2, 4.3 | • Recognises and interprets legislative, organisational and technical material to determine job requirements |
| Writing | 1.1, 1.2, 2.1-2.3, 3.5, 4.2 | • Develops a broad range of materials, such as administrative procedures, for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations |
| Navigate the world of work | 4.3 | • Understands own legal rights and responsibilities, and is extending understanding of general legal principles applicable across work contexts |
| Interact with others | 1.3 | • Collaborates with others to achieve joint outcomes, playing a lead role in facilitating consensus |
| Get the work done | 1.2-1.4, 2.1-2.4, 3.1- 3.4, 4.1, 4.2 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Uses formal and informal processes to monitor implementation of solutions<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information, and reflects on outcomes |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK515 Develop configuration management protocols | ICANWK515A Develop configuration management protocols | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK515 Develop configuration management protocols

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop technical and administrative procedures for use during the software life cycle, system or network reconfiguration or the upgrade process, including:
  - quality processes
  - audit trials
  - version control
  - configuration management procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain benchmarking methodologies
- outline configuration management
- summarise control mechanisms, such as acceptance criteria, test and acceptance processes, and security, access and management control criteria
- explain monitoring mechanisms
- identify and describe standards, benchmarks and organisational guidelines that impact on management protocols
- outline project planning methodologies and tools
- summarise quality assurance and quality processes
- clarify safety, security and legislative requirements
- explain software development methodologies.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- Computer aided software engineering (CASE) tools
- future organisational business processes
- organisational standards for documentation and version control
- project budget and timeframe
- project management process and hierarchy
- legislation and organisational guidelines
- technical specifications
- test plans.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK516 Determine best-fit topology for a local network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to determine the most appropriate way of networking computers to meet user needs and business requirements.

It applies to individuals in senior networking roles who are required to plan the most appropriate topology for a proposed network.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine user needs | 1.1 Identify the different segments of the proposed network based on business requirements<br>1.2 Determine segment needs, using network functional analysis<br>1.3 Estimate traffic content and volumes based on business requirements<br>1.4 Develop a prioritised organisational network functional matrix |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Develop local area network specification | 2.1 Determine the resource requirements for each network segment on the basis of functional analysis<br>2.2 Analyse features of the physical environment for the effect on network design<br>2.3 Conduct a costing process for possible topology options<br>2.4 Consider topology options with reference to available resources and network functional matrix<br>2.5 Select and document appropriate network topology based on business requirements and functional analysis |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.5 | • Interprets textual information obtained from a range of sources and determines how content may be applied to organisational requirements |
| Writing | 2.5 | • Develops material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Numeracy | 1.3, 2.1, 2.3, 2.4 | • Interprets numerical information and applies mathematical calculations to determine resource expenditure within predetermined constraints<br>• Interprets numerical data to estimate traffic needs |
| Get the work done | 1.1, 1.2, 1.4, 2.1, 2.2, 2.4, 2.5 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK516 Determine best-fit topology for a local network | ICANWK516A Determine best-fit topology for a local network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK516 Determine best-fit topology for a local network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse business or organisational needs
- identify the most appropriate local area network (LAN), virtual private network (VPN) or wireless local area network (WLAN) topology
- document recommendations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the typical network topologies for the following:
  - large and small LANs
  - wide area networks (WANs)
  - VPNs
  - virtual local area networks (VLANs)
  - WLANs
- identify and describe the typical components of a local network, including:
  - adaptor cards
  - bridges
  - Ethernet hardware
  - gateways
  - hubs
  - routers
- describe the software and programming requirements of a local network, including:


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  - security protocols
  - transmission control protocol or internet protocol (TCP/IP)
- describe the business consideration for establishing a local network including:
  - growth projections and capacity planning
  - costs and queuing constraints
  - high and low speed links
  - redundancy paths
  - response time and reliability requirements
  - scope of operation
  - traffic flow patterns
  - traffic load
  - application requirements of users
- outline of installation requirements for local area networks:
  - cabling, particularly unshielded twisted pair (UTP), shielded twisted pair (STP) or optic fibre
  - characteristics and relative strengths and weaknesses of LAN network topologies
  - features and capabilities of current industry accepted hardware and software products
  - features of line sharing protocols.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- business requirements
- equipment specifications
- organisational and industry costing.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK517 Determine best-fit topology for a wide area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify the best way computers and local area networks (LANs) can be connected to make a wide area network (WAN).

It applies to individuals with excellent planning and information and communications technology (ICT) skills in networking areas who are required to research and recommend the most appropriate topology for a WAN.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify WAN needs | 1.1 Identify the different LAN, wireless local area network (WLAN) or virtual private network (VPN) segments of the proposed WAN<br>1.2 Determine segment needs using functional analysis<br>1.3 Estimate traffic content and volumes according to expected organisational usage, by examining telecommunications infrastructure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Develop an organisational WAN functional matrix |
| 2. Create WAN specification | 2.1 Determine resource requirements for each LAN, WLAN or VPN segment on the basis of functional analysis<br>2.2 Consider and report how features of the physical environment affect WAN design<br>2.3 Choose a WAN service appropriate to the amount and type of traffic expected to access the WAN<br>2.4 Include redundant links in the proposed WAN connectivity for link backup purposes, in case the main link is disrupted<br>2.5 Document appropriate WAN service |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 2.2, 2.5 | • Develops material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Numeracy | 1.3, 1.4 | • Undertakes complex functional calculus to develop a WAN functional matrix<br>• Interprets numerical data to estimate traffic needs and calculate business expenses |
| Get the work done | 1.1-1.3, 2.1-2.4 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues with reference to resource constraints |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK517 Determine best-fit topology for a wide area network | ICANWK517A Determine best-fit topology for a wide area network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK517 Determine best-fit topology for a wide area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- consider budget constraints and business needs
- identify the configuration for connecting a local area network (LAN), wireless local area network (WLAN) or virtual private network (VPN) into a wide area network (WAN)
- document the configuration.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the typical network topologies for the following networks:
  - large and small LANs
  - WANs
  - VPNs
  - virtual local area networks (VLANs)
  - WLANs
- identify and describe the typical components and technologies required for a WAN, including:
  - concepts and types of modems
  - internet protocol (IP) addressing
  - packet switching
  - routed or routable protocols, including IP, IPX and AppleTalk
  - router operations, including double data rate (DDR)
  - routing protocols, including routing information protocol (RIP), enhanced interior gateway routing protocol (EIGRP) and open shortest path first (OSPF)


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  - transmission control protocols or internet protocols (TCPs/IPs)
  - relationship of asynchronous and synchronous communication
  - use of microwave and satellite communication in networking
- describe the business consideration for establishing a WAN, including:
  - constraints and costs
  - features of telecommunications infrastructure, including the difference between digital and analogue networks
  - growth projections and capacity planning
  - high or low speed links
  - protocols
  - redundancy paths
  - response time and reliability requirements
  - scope of operation
  - security
  - traffic flow patterns
  - traffic load
  - users and the applications expected.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- design documents relating to LANs to be incorporated into the WAN
- equipment specifications
- vendor product catalogues and costs.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK518 Design an enterprise wireless local area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to conduct an internal and outdoor site survey, and design a complex wireless local area network (WLAN).

It applies to individuals working in the networking area who are required to evaluate client requirements and design an appropriate WLAN.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Document current network configuration | 1.1 Obtain details of current network layout and parameters<br>1.2 Hold consultations with key stakeholders<br>1.3 Document the current network configuration, network topology and links to carrier |
| 2. Research client needs | 2.1 Identify the client's current needs<br>2.2 Determine future needs<br>2.3 Document current and future needs according to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | organisational requirements |
| 3. Implement site survey | 3.1 Select the appropriate diagnostic tools and measurement processes<br>3.2 Select test equipment and ensure calibration<br>3.3 Undertake site survey with minimum disruption to client and ensure safe working environment for users and survey personnel<br>3.4 Record physical infrastructure, building use, aesthetics and other issues that will impact on future network performance and acceptance by the client<br>3.5 Record radio frequency interference issues, sources and possible resolution<br>3.6 Document results of site survey |
| 4. Develop specifications for upgrade of wireless network | 4.1 Document the current network performance equipment and capacity for the expanded network<br>4.2 Assess interference issues relating to existing radio frequency, topographic barriers, climate, obstacles, transmission distances and construction materials<br>4.3 Assess optimum location and position of access points, repeaters, routers and other equipment<br>4.4 Develop cabling plans and repeater links, including power requirements<br>4.5 Determine frequency to be used based on client and user requirements |
| 5. Model network | 5.1 Determine appropriate test and modelling routines<br>5.2 Determine estimated network traffic and planned growth<br>5.3 Test planned network using modelling tools and techniques<br>5.4 Document outcome of tests and revise design where required |
| 6. Determine components for network | 6.1 Select and test vendor products and equipment where appropriate<br>6.2 Consult others, including emerging industry bodies, for sustainable compatibility, economic running costs and user connectivity access<br>6.3 Finalise components list for suitability and vendor claims |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 6.4 Prepare implementation plans |
| 7. Present design to client | 7.1 Present the design in a clear and logical fashion<br>7.2 Provide advice to client on reasons for design choice<br>7.3 Inform the client of design limitations, performance expectations and possible unanticipated outcomes, including security threats<br>7.4 Obtain feedback from client<br>7.5 Undertake modifications to design if required<br>7.6 Complete final design documentation and seek client endorsement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.3, 3.2, 7.4 | • Recognises and interprets legislative, organisational and technical material to determine job requirements |
| Writing | 1.3, 2.3, 3.4-3.6, 4.1, 4.4, 5.4, 6.3, 7.5, 7.6 | • Develops a broad range of technical material and creates records for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.2, 6.2, 7.2-7.4, 7.6 | • Uses listening and questioning skills to confirm understanding for requirements and participates in a verbal exchange of ideas/solutions<br>• Uses appropriate, detailed and clear language to address stakeholders, users and industry bodies to disseminate information |
| Numeracy | 3.2, 5.2, 6.2 | • Interprets numerical data to estimate and project traffic needs, undertake a cost benefit analysis and accurately calibrate equipment |
| Navigate the world of work | 3.3 | • Understands own legal rights and responsibilities and is extending understanding of general legal principles applicable across |


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| | | |
|---|---|---|
| | | work contexts |
| Interact with others | 7.1 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1, 2.1, 2.2, 3.1-3.3, 3.5, 4.2-4.5, 5.1, 5.3, 6.1, 6.4 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focussing attention on critical issues and variables |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK518 Design an enterprise wireless local area network | ICANWK518A Design an enterprise wireless local area network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK518 Design an enterprise wireless local area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- assess wireless network performance requirements for the client
- measure and diagnose wireless working environment
- produce wireless models and network specifications appropriate to client requirements
- produce wireless network designs and component lists
- document the design and obtain client approval.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe wireless network survey techniques, including:
  - audit and intrusion detection systems
  - auditing and penetration testing techniques
  - bandwidth and quality of service
  - factors affecting signal quality
- outline the key technical considerations for designing a wireless network, including:
  - features of antenna design
  - layer 2 and layer 3 design issues
  - impact of radio frequency
  - problems associated with topography and obstacles in radio transmission path
  - wireless topologies
  - wireless local area networks (WLAN) and wireless metropolitan access network (WMAN) solutions


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- outline the key client organisation considerations when designing a wireless network, including:
  - small office home office (SOHO) and enterprise local area networks (LANs)
  - transmission control protocols or internet protocols (TCP/IP) and applications
  - wireless security strategies
  - security threats
- outline the software consideration when designing a wireless network, including:
  - network protocols and operating systems
  - security protocols, standards and data encryption.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- network infrastructure, including wireless hardware and software
- network technical requirements
- real or simulated wireless networks
- appropriate diagnostic equipment and standards.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK519 Design an ICT security framework

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to evaluate information and communications technology (ICT) security requirements for a new system and to plan for controls and contingencies.

It applies to individuals working in senior roles in the networking area who are required to design security for new ICT systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research ICT security requirements | 1.1 Investigate and gather statutory, commercial and application security requirements<br>1.2 Assess impact on the existing ICT system<br>1.3 Identify additional ICT security requirements<br>1.4 Document security requirements and forward to appropriate person for approval |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Conduct risk analysis | 2.1 Identify security threats and determine security specifications, taking into account the internal and external business environment<br>2.2 Develop controls and contingencies to alleviate security threats<br>2.3 Identify the costs associated with contingencies<br>2.4 Document and forward recommendations to appropriate person for approval |
| 3. Develop ICT security policy and operational procedures | 3.1 Review feedback from appropriate person to determine how to manage security threats<br>3.2 Develop security policies based on the security strategy<br>3.3 Create and document work procedures based on the security policies<br>3.4 Document operating procedures and forward to appropriate person for approval<br>3.5 Take action to ensure confidentiality of client and user information<br>3.6 Apply statutory requirements to policy and procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1-3.3 | • Recognises and interprets legislative, organisational and technical material to determine job requirements |
| Writing | 1.4, 2.1, 2.4, 3.2-3.4 | • Develops a broad range of procedural material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 3.1 | • Uses listening and questioning skills to confirm understanding for requirements and articulates information clearly and concisely |
| Numeracy | 2.3 | • Interprets numerical data to develop a broad plan, budget and strategy |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 3.6 | • Understands own legal rights and responsibilities, and understands general legal principles applicable across work contexts |
| Interact with others | 1.4, 2.4, 3.4 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.5 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Uses digital technologies and systems safely and legally when gathering, storing, accessing and sharing information, with a growing awareness of the permanence and transparency of all activities<br>• May operate from a broad conceptual plan, developing the operational detail in stages, and regularly reviewing priorities and performance<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focussing attention on critical issues and variables |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK519 Design an ICT security framework | ICANWK519A Design an IT security framework | Updated to meet Standards for Training Packages.<br><br>Minor change to the title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK519 Design an ICT security framework

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and assess security framework requirements with consideration of statutory and commercial requirements
- determine the security risks and develop controls and contingencies
- identify costs associated
- document the security framework and obtain approval
- develop security policies and operating procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the design criteria for a security framework, including:
  - the client business domain
  - legislation relating to information and communications technology (ICT) security
  - current industry accepted hardware
  - current industry software products
  - security features and capabilities
  - operating systems
  - risk relating to ICT security
- identify and outline relevant privacy legislation
- identify and outline common security considerations for businesses, including:
  - typical environments
  - threats


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- policies and strategies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- information on the security environment
- laws or legislation
- existing organisational security policies
- organisational expertise
- ICT business specifications
- ICT security assurance specifications
- security environment, which also includes the threats to security that are, or are held to be, present in the environment
- risk analysis tools or methodologies.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK520 Design ICT system security controls

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design the security controls that ensure an information and communications technology (ICT) system is both physically and legally secure.

It applies to individuals in a range of ICT areas who are required to guarantee the security of ICT systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review organisational security policy and procedures | 1.1 Review business environment to identify existing requirements<br>1.2 Determine organisational goals for legal and security requirements<br>1.3 Verify security needs in a policy document<br>1.4 Determine legislative impact on business domain<br>1.5 Gather and document objective evidence on current security |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | threats<br>1.6 Identify options for using internal and external expertise<br>1.7 Establish and document a standard methodology for performing security tests |
| 2. Develop security plan | 2.1 Investigate theoretical attacks and threats on the business<br>2.2 Evaluate risks and threats associated with the investigation<br>2.3 Prioritise assessment results and write security policy<br>2.4 Document information related to attacks, threats, risks and controls in a security plan<br>2.5 Review the security strategy with security approved key stakeholders<br>2.6 Integrate approved changes into business plan and ensure compliance with statutory requirements |
| 3. Design controls to be incorporated into system | 3.1 Implement controls in a procedurally organised manner to ensure minimum risk of security breach in line with organisational guidelines<br>3.2 Monitor each phase of the implementation to determine the impact on the business<br>3.3 Take corrective action on system implementation breakdown<br>3.4 Record implementation process<br>3.5 Evaluate corrective actions for risk<br>3.6 Plan risk assessment review process<br>3.7 Take action to ensure confidentiality throughout all phases of design |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.5, 3.1 | • Recognises and interprets legislative, organisational and technical material to determine |


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| | | |
|---|---|---|
| | | job requirements |
| Writing | 1.3, 1.5, 1.7, 2.3, 2.4, 2.6, 3.4 | • Develops a broad range of business reports for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 2.5 | • Uses appropriate, detailed and clear language to address personnel and disseminate information in a group environment<br>• Uses listening and questioning skills to confirm understanding for requirements, and participates in a verbal exchange of ideas/solutions |
| Navigate the world of work | 1.2, 1.4, 2.6 | • Keeps abreast of legislative or regulatory requirements relevant to own role and considers implications of any changes when planning and undertaking work |
| Get the work done | 1.5, 1.6, 2.1-2.3, 3.1-3.3, 3.5-3.7 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles that may be adaptable in the future |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK520 Design ICT system security controls | ICANWK520A Design IT system security controls | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK520 Design ICT system security controls

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review organisational security policies and procedures
- establish realistic security procedures
- design security plan and controls for a system
- develop a security control strategy
- oversee the implementation and evaluation of the strategy.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe communications security, including human organisational interactions
- describe how to conduct an information security risk assessment
- identify and summarise internet security technologies and processes, including:
  - firewalls
  - physical security
  - security testing methods for performing security tests
  - wireless security
  - security threats
  - the impact of security policies, plans and strategies
  - general features of specific security technology
  - risk assessment
- describe current industry accepted security processes, including general features and capabilities of software and hardware solutions


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- outline the legal and ethical standards expected when considering security controls, including:
  - ethics in information and communications technology (ICT)
  - privacy issues
  - legislation
- summarise the need for developing organisational guidelines, processes, policies and procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- ICT security assurance specifications
- probability, frequency and severity of direct and indirect harm, loss or misuse of the ICT system
- risk analysis tools and methodologies
- an ICT environment in which there are security risks
- legislation, regulations and standards relating to security
- existing organisational security policies
- organisational expertise.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK521 Install, configure and test a payment gateway

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install, configure and test a payment gateway that enables translation of electronic payment information provided online into a form accessible to a merchant processor.

It applies to individuals in the network or web development area who are required to build e-commerce facilities into websites.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare server and e-business software for payment site | 1.1 Analyse client requirements and regulatory requirements<br>1.2 Evaluate payment software and select appropriate software to meet specifications, including security and privacy benchmarks<br>1.3 Review and compare online merchant options<br>1.4 Choose payment method with reference to business requirements and client expectations |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Test payment software and evaluate to ensure suitability and compatibility with current system and to meet client needs |
| 2. Install payment gateway | 2.1 Install selected payment software<br>2.2 Establish online merchant account<br>2.3 Configure web pages and back-end solutions to handle requests and integrate with the database for each transaction<br>2.4 Obtain merchant account information from the financial institution<br>2.5 Implement appropriate security systems to protect the payment infrastructure<br>2.6 Configure payment gateway to accept the appropriate payment methods and transaction types according to business requirements |
| 3. Test payment gateway | 3.1 Check transaction server for functionality against expected performance benchmarks<br>3.2 Test gateway using transaction types<br>3.3 Verify transactions by using the administrative functions of chosen payment software<br>3.4 Document payment gateway |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 3.3 | • Recognises and interprets organisational and technical material to determine job requirements |
| Writing | 2.4, 2.6, 3.4 | • Develops a range of reports for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Numeracy | 1.2, 1.5, 3.1 | • Interprets numerical data to check payment transactions against expectations and requirements |
| Get the work done | 1.2-1.5, 2.1-2.6, 3.1-3.3 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world |


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| | | |
|---|---|---|
| | | • Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles that may be adaptable in the future<br>• Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focussing attention and remedying problems as they arise |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK521 Install, configure and test a payment gateway | ICANWK521A Install, configure and test a payment gateway | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK521 Install, configure and test a payment gateway

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review client requirements and determine payment software
- install and configure the payment gateway
- test and verify transactions and functionality
- document completed payment gateway.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe online commerce systems and processes and their respective advantages/disadvantages, including:
  - batching verification
  - payment software products
  - public key infrastructure (PKI)
  - globally unique ID (GUID)
- describe the processes and techniques associated with implementing client-side shopping carts through active server pages (ASP) and interfacing with databases with ActiveX Data Objects (ADO)
- describe the relative advantages and disadvantages of credit card, digital cash and online cheque systems
- describe the relevance of Copyleft and Free Software Foundation
- outline electronic commerce modelling language (ECML)
- summarise encryption options for national and international business
- identify legislation, regulations and standards that influence online commerce, including:


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- copyright
- intellectual property
- privacy.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- appropriate servers and software
- payment software
- a simulated merchant account
- a website.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK522 Build decks using wireless markup language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create wireless markup language (WML) decks.

It applies to individuals who create specialised language intended for devices that implement the Wireless Application Protocol (WAP) specification, such as mobile phones. It provides navigational support, data input, hyperlinks, text and image presentation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Design WML deck | 1.1 Analyse existing hypertext markup language (HTML) page design and identify information to be accessible via hand-held device<br>1.2 Design deck logical structure, ensuring that deck size is kept within acceptable boundaries<br>1.3 Determine structure of content based on business needs and user requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Identify links between sets of cards<br>1.5 Design cards for user input or for the selection of more than one item |
| 2. Create deck | 2.1 Code each card in the deck, ensuring each card has an ID and a title<br>2.2 Create cards using language and practices compliant with the international WML standard<br>2.3 Use best practice coding standards in creating the deck<br>2.4 Avoid device specific features in creating the deck |
| 3. Test deck | 3.1 Test deck on multiple devices to ensure compatibility with as many hand-held devices as possible<br>3.2 Validate WML files by typing and submitting the uniform resource locator of the WML file or the WML validator<br>3.3 Ensure the <go> and <prev> tasks select the correct card in the deck<br>3.4 Ensure the tested WML files meet the needs of the business client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 2.2, 3.4 | • Recognises and interprets technical material to determine and confirm job requirements |
| Writing | 2.1, 2.2, 3.2 | • Demonstrates sophisticated writing skills using specialised language, stylistic devices and appropriate conventions to express precise meaning |
| Oral Communication | 1.3 | • Uses listening and questioning skills to confirm understanding for requirements, and participates in a verbal exchange of ideas/solutions |
| Navigate the world of work | 2.2, 2.3 | • Recognises and responds to explicit and implicit protocols within familiar work contexts |


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| | | |
|---|---|---|
| Get the work done | 1.2, 1.4, 1.5, 2.4, 3.1-3.4 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Monitors outcomes of decisions, considering results and identifying key concepts and principles that may be adaptable in the future<br>• Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focussing attention and remedying problems as they arise |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK522 Build decks using wireless markup language | ICANWK522A Build decks using wireless markup language | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK522 Build decks using wireless markup language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse existing parameters
- design wireless markup language (WML) files that meet the business client's need
- create the code using appropriate language and standards
- test and validate compatibility and performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the internet standards and transmission control protocols and internet protocols (TCPs/IPs) relevant to WML
- define five layer protocol stack of TCP/IP and explain its function in applications development
- outline wireless application protocol (WAP)
- outline application communication protocols
- identify and apply WML code, including:
  - WMLScript
  - WMLScript specification
  - extensible markup language (XML) 1.0 standard
  - XML applications
- explain the following features of wireless:
  - application environment
  - datagram protocol
  - session protocol


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  - transaction protocol
  - transport layer security
- identify and summarise the computer code of ethics as it applies to programming.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in networking, and include access to:

- XML parser
- WML valuator.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK524 Install and configure network access storage devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to select, install and test a network access storage (NAS) device in a local area network (LAN).

It applies to individuals who install, configure and test a NAS device.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine specifications for NAS | 1.1 Determine and document the topology of the local area network (LAN)<br>1.2 Investigate and determine current and future storage requirements according to current and future business needs<br>1.3 Determine the number and type of NAS devices required, and refer to current and future network requirements<br>1.4 Determine the requirements for network management, backup, security and redundancy according to organisational policy |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Select appropriate hardware and software | 2.1 Select the hardware and operating system software version with the appropriate features according to required specifications<br>2.2 Choose storage applications to determine access and response times |
| 3. Install hardware and software | 3.1 Install required level of RAID hardware or software<br>3.2 Install hard disks as specified by manufacturer instructions<br>3.3 Install operating system software according to manufacturer instructions<br>3.4 Connect to network media using media that meets required standard<br>3.5 Connect power, power it up and check operation |
| 4. Configure NAS | 4.1 Configure a network address and hostname<br>4.2 Establish and test a valid network connection with other LAN devices<br>4.3 Configure hard disks according to RAID requirements and format with appropriate file system<br>4.4 Configure access and security according to application and organisational requirements |
| 5. Test and troubleshoot NAS | 5.1 Test NAS according to manufacturer requirements and organisational guidelines<br>5.2 Ensure access and response times are acceptable to required applications, users and organisational policy<br>5.3 Make adjustments to the configuration, depending on test and troubleshooting results |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.4, 2.1, 3.2, 3.3, 4.4, 5.1, 5.2 | • Recognises and interprets technical, manufacturer and organisational documentation to determine and |


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| | | |
|---|---|---|
| | | confirm job requirements |
| Writing | 1.1, 4.1 | • Develops a range of workplace documentation for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Numeracy | 1.2, 1.3, 5.2 | • Uses mathematical formulae to calculate required equipment, undertake measurements and determine response times |
| Navigate the world of work | 1.4, 3.4, 5.1, 5.2 | • Takes full responsibility for identifying and considering relevant organisational protocols and requirements |
| Get the work done | 1.1-3, 2.1, 2.2, 3.1-3.5, 4.1-4.4, 5.2, 5.3 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Monitors outcomes of decisions, considering results and identifying key concepts and principles that may be adaptable in the future<br>• Uses nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focussing attention and remedying problems as they arise |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK524 Install and configure network access storage devices | ICANWK524A Install and configure network access storage devices | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK524 Install and configure network access storage devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the specifications for a network access storage (NAS)
- select the appropriate hardware and software requirements
- install a network access storage (NAS) device without interruption to other local area network (LAN) services
- configure LAN services accessing the NAS to allow user-less intervention for normal operation
- test and resolve configuration problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the advantages and disadvantages of NAS versus direct attached storage (DAS) devices
- identify and summarise the legislative, regulatory, standards and codes of practice related to NAS
- Identify and describe common hard drive types and connectors
- identify and describe common network cable types and connectors
- outline the common network topologies
- describe the implementation and configuration of networks
- recognise and describe redundant array of independent disks (RAID) configurations and state their application in data storage.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a NAS device or basic components to build a NAS, such as personal computer, operating system, hard disk, and network connection
- network devices, such as switches and routers
- workstations and servers
- cabling access points and a wireless access point.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK525 Configure an enterprise virtual computing environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop and implement virtualisation technologies, with the goal of providing a more sustainable information and communications technology (ICT) environment.

It applies to individuals working as senior networking staff responsible for increasing the sustainability of an organisation, by using virtualisation technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to configure the virtual environment | 1.1 Obtain the technical specifications and system requirements from virtualisation software vendors<br>1.2 Review the environmental requirements for installing the virtualisation software |
| 2. Install and configure the support services | 2.1 Install and configure the required services and ports, according to virtualisation software vendors |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Install and configure virtualisation client and server management software, according to the enterprise requirements<br>2.3 Install, configure and manage environmental requirements to ensure that virtual machines function<br>2.4 Configure virtual machines, using remote client management software |
| 3. Design and configure the virtual network | 3.1 Plan and design the virtual network, according to client needs<br>3.2 Install and configure the virtual networks<br>3.3 Verify the functionality of virtualisation network, according to the enterprise requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.1, 3.3 | • Recognises and interprets technical, manufacturer and organisational documentation, to determine and confirm job requirements |
| Writing | 1.1, 1.2, 3.1 | • Prepares documentation expressing ideas, explores complex issues, and is constructed logically, succinctly and accurately<br>• Writes and edits computer code, and technical data, ensuring the correct syntax and accuracy |
| Navigate the world of work | 1.2, 2.2 | • Takes full responsibility for identifying and considering the relevant organisational protocols and policies for designing, configuring and managing virtual networks in a virtual environment |
| Interact with Others | 1.1, 3.1, 3.3 | • Collaborates with others, sharing information to build strong work groups<br>• Elicits feedback and provides feedback to others |
| Get the work done | 1.1, 1.2, 1.3, 2.1-2.4 | • Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities |


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| | | |
|---|---|---|
| | | and performance during implementation, identifying and addressing any issues<br>• Actively identifies systems, devices and applications with the potential to meet current and/or future needs<br>• Responds intuitively to problems requiring immediate resolution, using understanding of the context to recognise anomalies and deviations from normal expectations, in a virtualised machine environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK525 Configure an enterprise virtual computing environment | ICANWK525B Configure an enterprise virtual computing environment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK525 Configure an enterprise virtual computing environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- obtain the visualisation specifications from vendors, and compare them with the environmental requirements
- install, configure and test, virtual machines
- manage the environmental requirements
- install and use software tools.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and summarise, current government and industry policies, and guidelines, related to the development of sustainable information and communication technology (ICT) environments
- describe the current technologies, and processes, designed to produce a sustainable ICT environment
- outline the available tools and software applications required to manage virtual machines
- explain the configuration of software applications required to manage virtual machines
- explain the configuration required to integrate virtual machines into the existing network design
- outline the structure, function and business organisation of the client.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in networking, and include access to:

- a site or prototype where virtual machine environments may be implemented
- the network's technical requirements
- industry relevant virtualisation software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK527 Manage an enterprise virtual computing environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage virtualisation technologies, with the goal of providing a more sustainable information and communications technology (ICT) environment.

It applies to individuals with excellent communication skills responsible for managing virtualisation technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage resources | 1.1 Monitor and adjust resources, to ensure virtual environment performance functions according to enterprise requirements<br>1.2 Verify the functionality of the virtual environment |
| 2. Manage virtual machines | 2.1 Use migration tools to convert a physical machine to a virtual machine<br>2.2 Select the appropriate deployment methods for a virtual |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | machine<br>2.3 Create and deploy a virtual machine, using installation media<br>2.4 Create and deploy a virtual machine, using automated templates<br>2.5 Use virtual machine snapshots to reverse, or implement, changes to a virtual machine |
| 3. Ensure high availability | 3.1 Plan and design a strategy, to ensure high availability of the virtual environment<br>3.2 Identify and select suitable resources for high availability implementation, according to the enterprise requirements<br>3.3 Configure the virtual machine environment to ensure high availability<br>3.4 Configure the virtual machine environment to provide live migration<br>3.5 Plan and design a backup strategy<br>3.6 Back up, and recover, a virtual machine using and integrating third-party tools |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2 | • Gathers, interprets and analyses technical and organisational data to determine requirements, according to client needs |
| Writing | 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.5 | • Prepares documentation that expresses ideas and explores complex issues, and is constructed logically, succinctly and accurately<br>• Writes and edits computer code, and technical data, ensuring the correct syntax and accuracy |
| Oral Communication | 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2 | • Liaises with clients about operational requirements, using specific and relevant language<br>• Uses listening and questioning techniques to |


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| | | |
|---|---|---|
| | | confirm understanding |
| Navigate the world of work | 1.1, 1.2 | • Takes full responsibility for identifying and considering, the relevant policies and legislative requirements in the management of an enterprise's virtual computing environment |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.3, 3.4, 3.6 | • Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world and understands the uses, and potential, of new technology<br>• May operate from a broad conceptual plan, developing operational detail in stages and regularly reviewing priorities, and performance, during implementation, and identifying, and addressing any issues<br>• Monitors the outcomes of decisions, considering the results from a range of perspectives, and identifying key concepts and principles that may be adaptable in the future<br>• Uses a nuanced understanding of context to recognise anomalies and subtle deviations to normal expectations, focusing attention and quickly remedying any problems as they arise |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK527 Manage an enterprise virtual computing environment | ICANWK527B Manage an enterprise virtual computing environment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK527 Manage an enterprise virtual computing environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- monitor and provide resources to a virtual environment
- create and deploy virtual machines
- implement changes to virtual machines
- back up and recover a virtual machine.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe, current government and industry policies, and guidelines, in relation to the development of sustainable information and communications technology (ICT) environments
- describe the current technologies, and processes, designed to produce a sustainable ICT environment
- define the structure, functions, and business organisation of the client
- summarise the application and deployment of virtual machine management tools
- outline virtual machine configuration and integration options.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site or prototype, where virtual machine environments may be implemented
- the network's technical requirements
- the appropriate software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK529 Install and manage complex ICT networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install and manage enterprise-wide information and communications technology (ICT) networks.

It applies to individuals with excellent ICT skills who are working as senior networking staff responsible for the sustainability of an organisation by using virtualisation technologies in complex computing environments of medium- to-large companies to provide network services and resources.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and design a complex network to meet business requirements | 1.1 Review network design, business requirements and latest vendor technical specifications for network components<br>1.2 Research options available for providing the network functionality required<br>1.3 Plan network implementation to provide network services and resources to meet business requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design and implement a security strategy | 2.1 Analyse requirements for internal and external security<br>2.2 Design security strategy to meet requirements<br>2.3 Implement security strategy<br>2.4 Undertake ongoing monitoring of the viability and reliability of network security, through testing and use of technical tools<br>2.5 Continually monitor internal and external network access for security breaches |
| 3. Install and configure a complex network to meet business requirements | 3.1 Check and install cabling and associated components according to industry standards<br>3.2 Install and configure servers, routers, switches or other devices to provide internet protocol (IP) addressing and routing<br>3.3 Install and configure servers, routers, switches or other devices to provide name resolution<br>3.4 Install and configure servers, routers, switches or other devices to provide network services<br>3.5 Install and configure remote access services<br>3.6 Install and configure devices to provide data management services |
| 4. Provide integrated network services across a complex network | 4.1 Integrate multiple network services across network<br>4.2 Analyse and resolve interoperability issues<br>4.3 Optimise performance<br>4.4 Rectify security conflicts arising from integrating services |
| 5. Plan, design and implement voice and video business communications system | 5.1 Install software and configure and test voice over internet protocol (VoIP) and videoconferencing services<br>5.2 Incorporate the use of a communications server to provide real-time multimedia communications<br>5.3 Select common voice and videoconferencing codecs according to standards and practices |
| 6. Manage and support a complex network | 6.1 Identify and evaluate appropriate network management tools to assist in the administration of the complex network<br>6.2 Select and install network management tools according to industry and organisational standards<br>6.3 Set and monitor alerts and logs |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 6.4 Capture and analyse network performance data<br>6.5 Implement automated server updates<br>6.6 Implement desktop management policies<br>6.7 Implement automated virus checking<br>6.8 Use remote management tools |
| 7. Test network functionality and obtain sign-off | 7.1 Test network functionality and record results<br>7.2 Record results of network functionality test<br>7.3 Complete network documentation according to organisational standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 6.6 | • Recognises and interprets technical and organisational documentation to determine and confirm job requirements |
| Writing | 2.2, 7.1-7.3 | • Develops a broad range of material, including recording test results for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 2.1 | • Uses listening and questioning skills to confirm understanding for requirements, and participates in a verbal exchange of ideas/solutions |
| Numeracy | 6.4 | • Interprets numerical data when taking measurements and evaluating the performance and interoperability of network services |
| Navigate the world of work | 3.1, 5.3, 6.2, 7.3 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and responding to protocols in new situations |
| Get the work done | 1.1, 1.3, 2.3-2.5, 3.1-3.6, 4.1-4.4, | • Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and |


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| | | |
|---|---|---|
| | 5.1-5.3, 6.1-6.8, 7.1 | enhance or reduce risks<br>• Actively identifies, creates and utilises linkages to enhance knowledge sharing, idea creation, individual and collective engagement, and work outcomes<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Uses nuanced understanding of context to recognise anomalies in a network environment and subtle deviations to normal expectations, focussing attention and remedying problems as they arise |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK529 Install and manage complex ICT networks | ICANWK529A Install and manage complex ICT networks | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK529 Install and manage complex ICT networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design and implement a complex network that involves integrating multiple network services to meet business requirements
- design and implement an appropriate security strategy for a complex network
- monitor and test the performance of aspects of the solution
- provide ongoing management and support of the network.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe firewall configurations and their application
- summarise internet protocol (IP) addressing and network configuration
- summarise and apply the following aspects of a network:
  - infrastructure
  - load balancing for applications
  - security
  - server operating systems
  - service configuration, including:
    - domain name system (DNS)
    - dynamic host configuration protocol (DHCP)
    - file transfer protocol (FTP)
    - network time protocol (NTP)
    - server messages block (SMB)


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  - mail
  - proxy
  - web
  - service management
- identify and describe troubleshooting tools and techniques, including network diagnostic utilities
- outline the purpose of user authentication and directory services
- describe voice over internet protocol (VoIP)
- describe virtual private network (VPN).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- network design and business requirements documents
- a complex network or hardware and software required to build a network involving multiple servers, multiple physical locations (or simulation of) and a combination of network services.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK531 Configure an internet gateway

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to connect network hardware devices, mainly personal computers (PCs), to an internet gateway.

It applies to individuals who are middle managers, network engineers, technical specialists or security analysts with excellent information communications and technology (ICT) skills who plan and implement networks, determine security threats and are involved in business budgeting.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm client requirements and network equipment | 1.1 Confirm and validate client requirements<br>1.2 Determine scope of internet services with reference to client requirements<br>1.3 Identify and install both hardware and software components<br>1.4 Verify equipment specifications and availability of components |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Review security issues | 2.1 Assess security features of internet gateways with reference to architecture and security plan<br>2.2 Review security measures with the internet service provider (ISP) with reference to firewalls and other measures as required<br>2.3 Brief users on the security plan with reference to internet use and hazard possibilities |
| 3. Install and configure gateway products and equipment | 3.1 Identify and select installation and configuration options<br>3.2 Install and configure gateway products and equipment as required by technical guidelines<br>3.3 Plan and execute tests with reference to client requirements and network impact<br>3.4 Analyse error reports and make changes as required |
| 4. Configure and test node | 4.1 Assign node to specific gateway as required by network architecture and client requirements<br>4.2 Determine connection type and configure with reference to network architecture and client requirements<br>4.3 Ensure node software and hardware are configured as required according to vendor specifications and client requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.4, 2.1, 3.2-3.4, 4.1-4.3 | • Recognises and interprets technical documentation, equipment manuals and specifications to determine and confirm job requirements |
| Oral Communication | 1.1, 1.2, 2.2, 2.3, 3.3, 4.1-4.3 | • Uses highly developed listening, observational and questioning skills to understand others' perspectives and clarify, explore and extend meaning<br>• Establishes and maintains complex and effective spoken communication to convey and clarify a range of complex information to relevant personnel |


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| | | |
|---|---|---|
| Navigate the world of work | 2.3, 3.2 | • Monitors adherence to legal and regulatory rights and responsibilities for self and possibly others |
| Get the work done | 1.2-1.4, 2.1, 2.2, 3.1-3.3, 4.1-4.3 | • Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and enhance or reduce risks<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Uses nuanced understanding of context to recognise anomalies in a network environment and subtle deviations to normal expectations, focussing attention and solving problems as they arise |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK531 Configure an internet gateway | ICANWK531A Configure an internet gateway | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK531 Configure an internet gateway

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine client requirements and network specifications
- determine security measures and brief users
- connect network hardware devices to an internet gateway
- configure and test gateway products
- configure and test node according to vendor specifications and client requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe current browser software
- explain domain name server (DNS) resolution
- outline the features and functions of:
  - network architecture
  - bridges as required
  - desktop operating systems
  - hubs
  - network gateways
  - network operating systems:
  - routers
  - switches
- describe the security issues that may impact on an internet gateway
- describe common security solutions and strategies


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- identify and describe the principle function of current gateway software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a network and internet where gateway products may be installed and configured
- use of hardware and software currently used in industry
- client requirements documentation
- vendor specifications.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK532 Identify and resolve network problems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to troubleshoot local area network (LAN), wide area network (WAN) and wireless network problems.

It applies to individuals such as network managers, network engineers and technical specialists who generally work independently with limited supervision. Staff at this level perform a broad range of problem-solving activities, including troubleshooting, evaluating and analysing networks, and planning and developing new systems and procedures.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Implement regular network monitoring | 1.1 Set up appropriate logs to monitor network activity and to produce a management information base (MIB)<br>1.2 Use network tools to benchmark the network and to establish a reference point for network performance<br>1.3 Identify critical activity levels and network capacity<br>1.4 Regularly review documents and logs to facilitate network |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | tuning<br>1.5 Make recommendations to management for additional network resources to improve performance or to proactively avoid problems |
| 2. Troubleshoot network problems | 2.1 Communicate with help desk and other support services to quickly identify network problems<br>2.2 Use various tools and knowledge of network topology and protocols to identify network problems<br>2.3 Consult with vendor or service suppliers for assistance where appropriate |
| 3. Diagnose network faults | 3.1 Establish likely fault hierarchy using data from previous resolution attempts<br>3.2 Progressively isolate fault with concurrent testing of fault presence<br>3.3 Document steps taken to resolve fault<br>3.4 Refer fault to a higher level if not resolved within organisational limits |
| 4. Rectify faults | 4.1 Isolate and repair, replace and reconfigure equipment or software<br>4.2 Test network to ensure fault rectification<br>4.3 Advise users and clients of progress and solutions in a timely manner<br>4.4 Complete support documentation |
| 5. Finalise fault rectification process | 5.1 Review resolution of fault for possible reoccurrence, planned maintenance or upgrade requirements<br>5.2 Report to client with fault resolution and recommendations<br>5.3 Obtain sign-off from the appropriate person for work and billing outside of warranty or service level agreements<br>5.4 Forward necessary documentation to the appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 3.1 | • Recognises and interprets technical material, equipment manuals and other specifications to determine and confirm job requirements |
| Writing | 1.5, 2.1, 2.3, 3.3, 4.3, 4.4, 5.2 | • Develops a broad range of material such as reports and test documentation for a specific audience, using clear and detailed language to convey explicit information |
| Oral Communication | 1.5, 2.1, 2.3, 4.3, 5.2 | • Uses highly developed listening, observational and questioning skills to understand others' perspectives and clarify, explore and extend meaning<br>• Establishes and maintains complex and effective spoken communication to convey and clarify a range of complex information to relevant personnel |
| Numeracy | 1.5 | • Performs mathematical calculations to analyse costs and values to accurately determine performance |
| Interact with others | 5.3, 5.4 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1-1.3, 2.2, 3.1, 3.2, 3.4, 4.1, 4.2, 5.1, | • Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and enhance or reduce risks<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Uses nuanced understanding of context to recognise anomalies in a network environment and subtle deviations to normal expectations, focussing attention and solving problems as they arise<br>• May identify a need for further information or seek advice from relevant experts |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK532 Identify and resolve network problems | ICANWK532A Identify and resolve network problems | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK532 Identify and resolve network problems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce a management information base
- benchmark the network performance
- troubleshoot and rectify network problems
- provide constant monitoring and tuning of the network
- review fault resolution and make recommendations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain current industry accepted hardware, cabling and software products, including general features and capabilities
- summarise organisational maintenance response-level escalation procedures
- outline the client business domain, including client organisation structure and business functionality
- summarise network management tools, including the general features and capabilities, with substantial depth in troubleshooting areas
- outline network topologies
- summarise networking technologies, their features and capabilities, including those relating to:
  - protocol stacks of transmission control protocol or internet protocol (TCP/IP)
  - open system interconnection (OSI)
- identify and summarise the importance of the key organisations that oversee internet protocols


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- identify and describe network protocols.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a live system and sites with a representative range of network environments and operating systems
- technical records and documentation
- management information base of accumulated fault resolution information
- network support tools.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK533 Configure and manage advanced virtual computing environments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to configure and manage, advanced virtual computing environments to provide a more efficient and reliable information and communications technology (ICT) environment.

It applies to senior networking staff responsible for increasing the sustainability of an enterprise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Configure and manage core virtual networks | 1.1 Plan and design the virtual network, according to enterprise requirements<br>1.2 Configure virtual local area networks (VLANs) and security, and virtual switch (vSwitch) ports<br>1.3 Implement security policies, traffic-shaping and network interface controller (NIC) teaming<br>1.4 Manage distributed vSwitch connections, vSwitch physical |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and vSwitch storage adapter connections<br>1.5 Configure and manage multiple networks |
| 2. Configure and manage core infrastructure storage and services | 2.1 Obtain the technical storage specifications and system requirements, from the virtualisation software vendors<br>2.2 Plan and design, the core infrastructure storage environment<br>2.3 Create, configure and secure the virtual storage connection<br>2.4 Manage and secure the virtual storage connection<br>2.5 Install and manage the local and shared data store, including the data store clusters and resource pools<br>2.6 Configure and manage provisioning services and templates |
| 3. Secure virtual environment | 3.1 Plan and design the administrative strategies<br>3.2 Configure the user roles to administer the virtual environment<br>3.3 Set up user privileges and permissions, according to the enterprise environment |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.1 | • Draws on a broad range of strategies, in order to build and maintain understanding throughout complex texts |
| Writing | 1.1, 2.2, 3.1 | • Prepares documentation that expresses ideas, explores complex issues, and is constructed logically, succinctly and accurately |
| Navigate the world of work | 1.1, 1.3, 3.3 | • Modifies or develops organisational policies and procedures, to comply with legislative requirements and the organisation’s goals |
| Get the work done | All | • Monitors the progress of plans and schedules, and reviews, and changes them, to meet new demands and priorities<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of |


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| | | |
|---|---|---|
| | | variables, including outcomes of previous decisions<br>• Investigates new and innovative ideas as a means by which to continuously improve work practices and processes through consultation, formal and analytical thinking<br>• Applies systematic and analytical decision- making processes for complex and non-routine situations<br>• Uses and investigates, new digital technologies and applications to manage and manipulate data, and to communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK533 Configure and manage advanced virtual computing environments | ICANWK533A Configure and manage advanced virtual computing environments | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK533 Configure and manage advanced virtual computing environments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and design a virtual network, using the available advanced technologies
- configure the virtual network's security and storage requirements
- manage and administer the virtual network at an advanced level.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- define current government and industry policies, and guidelines, relating to the development of efficient and reliable, information and communications technology (ICT) environments
- determine the current technologies, and processes, designed to produce an efficient and reliable ICT environment
- describe the structure, functions, and business organisation of the client
- identify the benefits and costs of virtualisation
- summarise the procedures and processes for planning, designing and securing virtual environments
- specify the design, and configuration, of the available tools and software applications required to manage virtual machines
- specify the configuration required to integrate virtual machines into the existing network design
- describe the configuration and management of the storage infrastructure.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site or prototype, where virtual machine environments may be implemented
- the network's technical requirements
- a range of suitable software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK534 Monitor and troubleshoot virtual computing environments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to monitor and troubleshoot, virtualisation technologies to provide a more efficient and reliable information and communications technology (ICT) environment.

It applies to senior networking staff responsible for increasing the sustainability of an enterprise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan the strategies to monitor and troubleshoot the performance of the enterprise's virtual computing environment | 1.1 Develop a plan to monitor the virtual environment to ensure its availability and optimal performance, according to the enterprise requirements<br>1.2 Identify the virtual environment's critical activity level, and assign resources as needed<br>1.3 Review the system's logs and alerts, in order to facilitate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | virtual environment tuning |
| 2. Manage virtual environment performance to ensure full resource optimisation | 2.1 Monitor and diagnose the memory central processing unit (CPU) and distributed power management performance<br>2.2 Review the storage and cluster performance, in order to maximise operational efficiency<br>2.3 Monitor tasks, events and alarms, and network activity, and make relevant adjustments to ensure optimal operation |
| 3. Analyse and troubleshoot the virtual environments | 3.1 Review virtual machine capacity, application, storage, input and output (I/O) performance, to identify and resolve any performance issues<br>3.2 Test, analyse and troubleshoot, identified virtual network problems<br>3.3 Analyse and troubleshoot, high availability to ensure that the virtual machines are running at optimal performance levels<br>3.4 Consult with the virtualisation software vendors to provide solutions, where required |
| 4. Diagnose virtual environment faults and provide solutions | 4.1 Use virtualisation client and server management software tools, to help diagnose any virtual environment problems<br>4.2 Install and configure external virtualisation management tools, to help diagnose any virtual environment problems<br>4.3 Use system logs and alerts to collect and analyse errors<br>4.4 Evaluate problems using log files and alerts |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 2.2, 3.1, 3.3, 4.3, 4.4 | • Critically analyses documentation from a variety of sources and records, and consolidates information, to determine requirements |
| Writing | 1.1 | • Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy, and the consistency of information |


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| | | |
|---|---|---|
| Oral Communication | 3.4 | • Presents complex information in formal situations, using clear and convincing language, and the tone and pace appropriate for the audience and purpose |
| Get the work done | 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Monitors the progress of plans and schedules, and reviews and changes them, to meet new demands and priorities<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Investigates new and innovative ideas, as a means by which to continuously improve work practices and processes, through consultation, formal and analytical thinking |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK534 Monitor and troubleshoot virtual computing environments | ICANWK534A Monitor and troubleshoot virtual computing environments | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK534 Monitor and troubleshoot virtual computing environments

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- monitor the enterprise's virtual computing environment, using the correct management tools
- configure the enterprise's virtual computing environment to operate at an optimal performance level
- troubleshoot problems in the virtual computing environment, using the relevant management tools.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and review, current government and industry policies, and guidelines, relating to the development of efficient and reliable, information and communications technology (ICT) environments
- define the current technologies, and processes, designed to produce an efficient and reliable ICT environment
- specify the structure, functions and business organisation of the client
- identify and apply, the available tools and software applications required to manage virtual machines
- specify the configuration of software applications required to manage virtual machines
- specify the configuration required to integrate virtual machines, into an existing network design.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site or prototype, where virtual machine environments may be implemented
- the network's technical requirements
- a range of suitable software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK535 Install an enterprise virtual computing environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop and implement, virtualisation technologies to provide a more efficient and reliable information and communications technology (ICT) environment.

It applies to senior networking staff responsible for increasing the sustainability of an enterprise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse client needs | 1.1 Assess the client requirements<br>1.2 Assess the existing client or server systems that may be suitable to be virtualised |
| 2. Analyse the virtualisation host software | 2.1 Assess and compare suitable virtualisation host software, according to the enterprise requirements<br>2.2 Document the recommendations and provide these to the appropriate person |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Evaluate the system requirements | 3.1 Obtain and document the technical specifications, licensing and system requirements from the virtualisation software vendors<br>3.2 Evaluate, and compare, the system requirements needed to implement virtualisation<br>3.3 Document the recommendations and provide to the appropriate person |
| 4. Plan and install the virtualisation host software | 4.1 Plan and prepare, for the host software installation<br>4.2 Obtain and install the virtualisation host platform<br>4.3 Test and validate the functionality of the virtualisation host platform, according to the enterprise requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.1, 3.2 | • Critically analyses documentation from a variety of sources and records, and consolidates information, in order to determine requirements |
| Writing | 2.2, 3.1, 3.3 | • Prepares and produces dynamic material for a specific audience, using clear and detailed language in order to convey explicit information, requirements and recommendations |
| Oral Communication | 1.1, 2.2, 3.1, 3.3 | • Uses collaborative and inclusive techniques, including active listening and questioning, and the reading of verbal and non-verbal signals to convey and clarify information, and to confirm understanding |
| Navigate the world of work | 2.1, 4.3 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies the organisational implications of new legislation or regulation<br>• Identifies and resolves key business issues, processes, and practices that may have legal implications |


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| | | |
|---|---|---|
| Interact with others | 1.1, 2.2, 3.1, 3.3 | • Elicits feedback and provides feedback to others, in order to improve self or workgroup behaviours<br>• Recognises the diversity in people, and manages this diversity to improve workplace relations and practices |
| Get the work done | 1.1, 1.2, 3.2, 4.1, 4.2, 4.3 | • Monitors the progress of plans and schedules, and reviews and changes them, to meet new demands and priorities<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables, including the outcomes of previous decisions<br>• Applies systematic and analytical decision- making processes for complex and non-routine situations<br>• Investigates new and innovative ideas, as a means by which to continuously improve, work practices and processes through consultation, formal and analytical thinking |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK535 Install an enterprise virtual computing environment | ICANWK535A Install an enterprise virtual computing environment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK535 Install an enterprise virtual computing environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and apply, the suitable tools and software applications required to manage virtual machines
- configure the software applications to manage virtual machines
- integrate the virtual machines into the existing network design
- test and validate the virtualisation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- determine current government and industry policies, and guidelines, relating to the development of efficient and reliable, information and communications technology (ICT) environments
- analyse the current technologies, and processes, designed to produce an efficient and reliable ICT environment
- research the current recommendations on sustainability options in ICT design
- discuss the benefits of virtualisation
- identify and apply, the processes and procedures for installing and configuring virtualisation software and virtual machines
- identify and apply, the processes and procedures for configuring virtual machines into network design
- determine the structure, functions and business organisation of the client
- identify and apply, the available tools and software applications required to manage virtual machines
- research the configuration of software applications required to manage virtual machines


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- research the configuration required to integrate virtual machines into existing network design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- site or prototype, where virtual machine environments may be implemented
- the network's technical requirements
- industry relevant virtualisation software.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK601 Design and implement a security system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use software tools, equipment and protocols to implement a security system.

It applies to individuals who plan and implement networks, are involved in business budgeting, and determine and resolve network security threats.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assess the security threats facing network Infrastructure | 1.1 Evaluate mitigation methods for network attacks and different types of malware<br>1.2 Propose a methodical concept of defending network architecture |
| 2. Secure edge devices (routers) | 2.1 Secure network routers using software tools<br>2.2 Secure administration access to routers using the router operating system (OS) |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Secure router OS and its configuration file(s) |
| 3. Implement authentication, authorisation and accounting (AAA) and secure access control system (ACS) | 3.1 Evaluate and implement the functions and importance of authentication, authorisation and accounting<br>3.2 Configure the router using AAA<br>3.3 Analyse and compare the features of Terminal Access Controller Access-Control System Plus(TACACS+) and Remote Authentication Dial In User Service (RADIUS) AAA protocols for securing the network |
| 4. Mitigate threats to routers and networks using access control lists (ACLs) | 4.1 Assess the functionality of access control lists and document the caveats to be considered when building them<br>4.2 Configure and verify IP ACLs to mitigate threats and to prevent internet protocol (IP) address spoofing using tools |
| 5. Implement secure network management and reporting | 5.1 Configure secure shell (SSH) on routers to enable secure management<br>5.2 Configure routers to send log messages to a log server with tools |
| 6. Mitigate common layer 2 attacks | 6.1 Document how to prevent layer 2 attacks by configuring basic switch security and features<br>6.2 Configure switch to prevent layer 2 attacks |
| 7. Implement the router OS firewall-feature set | 7.1 Evaluate and compare the operational strategies and weaknesses of the different firewall technologies<br>7.2 Implement zone-based firewall to strategically secure group of interfaces |
| 8. Implement the intrusion detection and prevention system (IDPS) feature set in the router OS using secure device manager (SDM) | 8.1 Evaluate and compare network based versus host based IDPS to identify malicious activity, log information, attempt to block/stop activity, and report activity<br>8.2 Determine IDPS technologies, attack responses and monitoring options<br>8.3 Configure the router OS IDPS operations using secure device manager to monitor network and system activities for malicious activity |
| 9. Implement site-to-site virtual private networks (VPNs) using SDM | 9.1 Assess the different methods used in cryptography<br>9.2 Evaluate internet key exchange (IKE) protocol functionality and phases to support authentication and define the binding blocks of IPSec and the security functions it provides |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 9.3 Configure and verify an IPSec site-to-site VPN with pre-shared key (PSK) authentication to provide a secure channel between the two parties |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Recognises and interprets technical documentation to determine and confirm job requirements |
| Writing | 1.2, 4.1, 6.1, 8.1, 8.2, | • Develops a broad range of materials, such as reports, for a specific audience using clear and detailed language to convey explicit information |
| Oral Communication | 8.2 | • Establishes and maintains complex and effective spoken communication to convey and clarify a range of complex information |
| Numeracy | 9.2 | • Interprets numerical data when taking test measurements, interpreting results and evaluating performance and interoperability of the network |
| Interact with others | 1.2, 8.1 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience, and monitors impact |
| Get the work done | 1.1, 2.1-2.3, 3.1-3.3, 4.1, 4.2, 5.1, 5.2, 6.2, 7.1, 7.2, 8.1, 8.3, 9.1-9.3 | • Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and enhance or reduce risks<br>• Actively identifies, creates and utilises linkages to enhance knowledge sharing, idea creation, individual and collective engagement and work outcomes<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may |


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| | | |
|---|---|---|
| | | be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles that may be adaptable to future situations<br>• Responds intuitively to problems requiring immediate resolution, using understanding of context to recognise anomalies and deviations from normal expectation in a network environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK601 Design and implement a security system | ICANWK601A Design and implement a security system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK601 Design and implement a security system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate network security system threats and requirements
- mitigate attacks and configure firewalls
- design and implement network security systems
- implement a virtual private network (VPN) using security device management tool.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise access control lists, configuration and troubleshooting
- outline authentication protocols
- explain encryption techniques
- explain intrusion detection system (IDS) and intrusion prevention system (IPS)
- clarify internet protocol (IP) and networking models
- explain current wireless regulations, standards and certifications
- describe local area network (LAN) or wide area network (WAN) implementations
- summarise malicious attacks and prevention techniques
- outline network management tools
- explain network security prevention methods
- explain procedures to configure, verify and troubleshoot:
  - switch with virtual local area networks (VLANs) and inter-switching communications


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  - router
- outline procedures to set up virtual private networks (VPNs)
- explain routing protocols
- explain threat and attack mitigation techniques
- outline the use of command line interface to configure and test network elements
- describe the common features of Terminal Access Controller Access-Control System Plus(TACACS+) and Remote Authentication Dial In User Service (RADIUS) authentication, authorisation and accounting (AAA) protocols.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where network security may be evaluated and tightened
- hardware and software
- organisational guidelines, procedures and policies
- computers
- LAN or WLAN internet work technologies (hardware and software)
- security technologies (hardware and software).

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK602 Plan, configure and test advanced server-based security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement advanced server security using secure authentication and network services on a network server.

It applies to individuals working as information and communications technology (ICT) network specialists, ICT network engineers, network security specialists, network security planners and network security designers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan advanced network server security according to business needs | 1.1 Consult with client and key stakeholders to identify security requirements in an advanced network server environment<br>1.2 Analyse and review existing client security documentation and predict network service vulnerabilities<br>1.3 Research network authentication and network service configuration options and implications to produce network |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | security solutions<br>1.4 Ensure features and capabilities of network service security options meet the business needs<br>1.5 Produce or update server security design documentation to include new solutions<br>1.6 Obtain sign-off for the security design from the appropriate person |
| 2. Prepare for<br>Network server security implementation | 2.1 Prepare for work in line with site-specific safety requirements and enterprise occupational health and safety (OHS) processes and procedures<br>2.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>2.3 Consult appropriate person to ensure the task is coordinated effectively with others involved at the worksite<br>2.4 Back up server before implementing configuration changes |
| 3. Configure the advanced network server security according to design | 3.1 Configure update services to provide automatic updates to ensure maximum security and reliability<br>3.2 Configure network authentication, authorisation and accounting services to log and prevent unauthorised access to the server<br>3.3 Configure basic service security and access control lists to limit access to authorised users, groups or networks<br>3.4 Implement encryption as required by the design<br>3.5 Configure advanced network service security options for services and remote access<br>3.6 Configure the operating system or third-party firewall to filter traffic in line with security requirements<br>3.7 Ensure security of server logs and log servers are appropriately implemented for system integrity<br>3.8 Implement backup and recovery methods to enable restoration capability in the event of a disaster |
| 4. Monitor and test network server security | 4.1 Test server to assess the effectiveness of network service security according to agreed design plan<br>4.2 Monitor server logs, network traffic and open ports to detect possible intrusions<br>4.3 Monitor important files to detect unauthorised modifications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.4 Investigate and verify alleged violations of server or data security and privacy breaches<br>4.5 Recover from, report and document security breaches according to security policies and procedures<br>4.6 Evaluate monitored results and reports to implement and test improvement actions required to maintain the required level of network service security |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 3.6, 4.1, 4.3, 4.5, 4.6 | • Recognises and interprets technical enterprise security procedures, policies, specifications, and vendor notifications to determine and confirm job requirements |
| Writing | 1.5, 4.5 | • Develops a broad range of material including security reports for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.1, 2.2, 2.3, 4.5 | • Uses listening and questioning skills to confirm understanding for requirements<br>• Articulates clearly, using specific and relevant language suitable to audience, and participates in verbal exchanges of ideas and solutions |
| Interact with others | 1.6 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Navigate the world of work | 2.1 | • Keeps up to date on changes to legislation or regulations relevant to own rights and responsibilities, and considers implications of these when planning, negotiating and undertaking work |
| Get the work done | 1.2, 1.4, 2.2, 2.4, 3.1-3.8, 4.1, 4.2, 4.4-4.6 | • Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and enhance |


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| | | |
|---|---|---|
| | | or reduce risks<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Uses nuanced understanding of context to detect, investigate and recover from security breaches |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK602 Plan, configure and test advanced server-based security | ICANWK602A Plan, configure and test advanced server-based security | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK602 Plan, configure and test advanced server-based security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify network service security vulnerabilities and appropriate controls
- plan, design and configure a secure network authentication service
- secure a wide range of network services to ensure server and data security, including:
  - dynamic name system (DNS)
  - web and proxy
  - mail
  - file transfer protocol (FTP)
  - firewall
- implement cryptographic techniques
- monitor the server for security breaches.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain auditing and penetration testing techniques
- summarise best practice procedures for implementing backup and restore
- outline cryptographic techniques
- clarify the procedures for error and event logging and reporting
- explain intrusion detection and recovery procedures
- outline network service configuration, including:
  - DNS
  - dynamic host configuration protocol (DHCP)


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  - web
  - mail
  - FTP
  - server messages block (SMB)
  - network time protocol (NTP)
  - proxy
- summarise network service security features, options and limitations
- outline network service vulnerabilities
- summarise operating system help and support utilities
- describe planning, configuration, monitoring and troubleshooting techniques
- outline security protection mechanisms
- summarise security threats and risks
- explain server firewall configuration
- explain server monitoring and troubleshooting tools and techniques, including network monitoring and diagnostic utilities
- summarise user authentication and directory services.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site where server installation may be conducted
- relevant server specifications
- cabling
- networked (LAN) computers
- server diagnostic software
- switch
- client requirements
- WAN service point of presence
- workstations
- relevant regulatory documentation that impacts on installation activities.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK603 Plan, configure and test advanced internetwork routing solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge necessary to plan, configure and support advanced internet protocol (IP) addressing and routing when implementing scalable and secure routers connected to local area networks (LANs) and wide area networks (WANs). The unit also covers configuration of secure routing solutions to support branch offices and mobile workers.

It applies to individuals with advanced information and communications technology (ICT) skills who are working in a variety of roles, including network specialists, network engineers, network infrastructure engineers, senior network administrators, network and systems managers, ICT security specialists, security engineers, communications engineers and communications managers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan, configure and test a complex network-routing protocol | 1.1 Determine network resources required for implementing a complex distance-vector routing protocol solution, a multi-area link-state routing protocol solution and an exterior routing |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| solution | protocol solution on a network<br>1.2 Produce separate protocol implementation plans and verification plans for each routing solution<br>1.3 Configure and test the routing protocol solution<br>1.4 Document results of the routing protocol solution implementation and verification plans for each solution |
| 2. Plan, configure and test an internet protocol version 6- (IPv6) based network solution | 2.1 Determine network resources needed for implementing IPv6 on a network<br>2.2 Produce an implementation plan and a verification plan for an IPv6-based network solution<br>2.3 Configure IPv6 routing and IPv6 interoperation with IPv4<br>2.4 Verify and test the IPv6 solution and make amendments if necessary<br>2.5 Document results of IPv6 implementation and verification plans |
| 3. Plan, configure and test an IPv4 or IPv6-based network redistribution solution | 3.1 Produce an IPv4 or IPv6 redistribution implementation plan and verification plan, based on the outcomes of a network redistribution analysis<br>3.2 Configure and verify the redistribution solution for the network<br>3.3 Document results of redistribution, implementation and verification plans<br>3.4 Analyse the differences between implementing an IPv4 and an IPv6 redistribution solution |
| 4. Plan, configure and test a layer 3 path control solution | 4.1 Produce a layer 3 path control implementation plan and a verification plan based on the outcomes of a network redistribution analysis<br>4.2 Configure and verify layer 3 path control for the network<br>4.3 Implement basic teleworker and branch services<br>4.4 Evaluate and compare broadband technologies and VPN technologies in terms of access and data transfer rate as solutions for secure broadband network |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Recognises and interprets complex technical information to determine and confirm job requirements |
| Writing | 1.2, 1.4, 2.2, 2.5, 3.1, 3.3, 4.1 | • Develops a broad range of material including operational, technical and project management documentation for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Get the work done | 1.1, 1.3, 2.1, 2.3, 2.4, 3.1, 3.2, 3.4, 4.1-4.4 | • Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and enhance or reduce risks<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan to identify functional, performance and management features associated with the operation of complex networks<br>• Uses nuanced understanding of context to solve problems in complex and dynamic environments with demanding service levels |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK603 Plan, configure and test advanced internetwork routing solutions | ICANWK603A Plan, configure and test advanced internetwork routing solutions | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK603 Plan, configure and test advanced internetwork routing solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan, configure and support advanced routed network infrastructure
- use network tools
- plan and analyse redistribution solutions
- produce and configure layer 3 path control implementation plan
- provide solutions to static and dynamic routing issues together with optimisation strategies.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain broadband technologies relevant to advanced internetworking routing solutions
- summarise business justifications for having integrated and unified enterprise networks
- outline emerging viable business and social technologies
- clarify external developments or factors that affect network design
- summarise IPv4 and IPv6 technologies and solutions
- outline maintenance and management tools and practices suitable for complex networks to achieve availability and resilience
- summarise network topologies
- explain regulations, standards and certifications relevant to advanced internetworking routing solutions
- explain risk management strategies and practices suitable for a complex network environment
- outline routing tables, protocols and operational processes


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- summarise routing technologies for an enterprise environment
- summarise security for enterprise networks
- explain security standards and technologies for network environments
- outline the benefits of formal or structured approaches to network management
- summarise virtual private network (VPN) technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site where network installation may be conducted
- router hardware and software
- organisational guidelines
- computers
- local area network (LAN) and wide area network (WAN) systems.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK604 Plan and configure advanced internetwork switching solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan, configure and support advanced enterprise switching. The unit also covers secure integration of virtual local area networks (VLANs), wireless local area networks (WLANs), voice and video into campus networks.

It applies to individuals with advanced information and communications technology (ICT) skills who are working in a variety of roles, including network specialists, network engineers, network infrastructure engineers, senior network administrators, network and systems managers, ICT security specialists, security engineers, communications engineers and communications managers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan, configure and test a VLAN-based solution | 1.1 Determine network resources required for implementing a VLAN-based solution for a given network design and requirements<br>1.2 Produce an implementation plan and a verification plan for |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the VLAN-based network solution<br>1.3 Configure and verify switch-to-switch connectivity, loop prevention and access ports for the VLAN-based solution using network tools<br>1.4 Document results of the VLAN implementation and verification plans |
| 2. Plan, configure and test a secure layer 2 network solution and a switch-based layer 3 services solution | 2.1 Determine network resources required for implementing a secure layer 2 network solution and a switch-based layer 3 solution against vulnerabilities with organisational security policies<br>2.2 Produce an implementation plan and a verification plan for each of the layer 2 and layer 3 network solution<br>2.3 Configure and verify a private VLAN and features for port security and general switch security for the layer 2 network solution, using network tools<br>2.4 Configure and verify routing interfaces and layer 3 security for the switch-based layer 3 network solution, using network tools<br>2.5 Document results of security implementation and verification plans for each of the layer 2 and the layer 3 network solution |
| 3. Prepare infrastructure to support advanced services | 3.1 Implement a wireless extension of a layer 2 solution<br>3.2 Implement a support solution for a voice over internet protocol (VoIP) and a video application |
| 4. Plan, configure and test high-availability networks using multilayer switches solution | 4.1 Determine network resources needed for implementing high-availability solution for a given network design and requirements<br>4.2 Produce an implementation plan and a verification plan for the high-availability network, using multilayer switches<br>4.3 Configure, verify and manage first hop redundancy protocols (FHRP)<br>4.4 Implement switch supervisor redundancy and use network tools to verify the high-availability solution<br>4.5 Document results of high-availability implementation and verification plans |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 4.1 | • Recognises and interprets complex technical design information to determine and confirm job requirements |
| Writing | 1.2, 1.4, 2.2, 2.5, 4.1, 4.2, 4.5 | • Develops a broad range of material, including operational, technical, procedural and project management documentation for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Navigate the world of work | 2.1 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and responding to protocols in new situations |
| Interact with others | 1.1, 2.1, 4.1 | • Collaborates with others, sharing information<br>• Elicits feedback and provides feedback to others in order to improve |
| Get the work done | 1.1, 1.3, 2.1, 2.3, 2.4, 3.1, 3.2, 4.1, 4.3, 4.4 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan to identify functional, performance and management features associated with the operation of complex switched networks<br>• Uses nuanced understanding of context to solve problems in complex and dynamic environments with demanding service levels |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK604 Plan and configure advanced internetwork switching solutions | ICANWK604A Plan and configure advanced internetwork switching solutions | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK604 Plan and configure advanced internetwork switching solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, configure and support advanced switched network infrastructure
- implement wireless extension solution with multi-layered (layer 3) switches
- prepare infrastructure to support advanced services
- use network tools.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the benefits of formal or structured approach to network management
- summarise business justifications for having integrated and unified enterprise networks
- outline current wireless regulations, standards and certifications
- clarify emerging viable business and social technologies
- explain external developments or factors that affect switched network design
- summarise maintenance and management tools and practices suitable for complex networks to achieve availability and resilience
- outline network topologies
- explain organisational policies for internetworking
- summarise risk management strategies and practices suitable for a complex switched network environment
- outline security for an enterprise-switched environment
- explain security standards and technologies for switched network environments
- summarise switching and routing technologies for an enterprise-switched environment.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site where network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- local area network (LAN) and wide area network (WAN) systems, including voice and video (hardware or software).

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK605 Design and configure secure integrated wireless systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use appropriate tools, equipment, software and protocols to produce a verified radio frequency (RF) design plan for a wireless local area network (WLAN) and to design, configure and troubleshoot secure integrated wireless systems.

It applies to individuals with advanced information and communications technology (ICT) skills who are working as wireless network installers, wireless network support specialists and wireless network engineers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and conduct a site survey for setting up a wireless network | 1.1 Assess client requirements to plan for selecting appropriate WLAN technology and network elements<br>1.2 Evaluate existing network infrastructure and produce a wireless network topology to determine upgrade or new installation requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Prepare basic RF deployment considerations related to site survey design of data or voice over WLAN applications<br>1.4 Produce a survey model, including deployment characteristics to meet client requirements<br>1.5 Produce a spectral analysis predictive layer 1 site survey verified by a physical site survey<br>1.6 Analyse the survey results produced with an RF network design for a secure wireless network<br>1.7 Conduct an RF field trial for final evaluation of network topology and network element placements |
| 2. Prepare design specifications and plan for secure enterprise WLANs | 2.1 Prepare for work according to relevant legislation, workplace health and safety (WHS), codes, regulations and standards<br>2.2 Produce design specifications and layout for wireless network, using spread spectrum technology for enhanced network security<br>2.3 Review design plans to ensure sound WLAN RF principles and compliance with wireless regulatory bodies, standards and certifications |
| 3. Configure and test a controller-based WLAN | 3.1 Produce a controller-based wireless architecture from a possible range of industry-based wireless network architectures<br>3.2 Configure and test a WLAN controller and access points, using controller-based AP discovery and association to enable roaming facilities<br>3.3 Configure the basics of a stand-alone access point<br>3.4 Configure and test client operating system WLAN configuration and install vendor specific software and utilities where applicable |
| 4. Configure and test WLAN security | 4.1 Review the general framework of wireless security and security components for securing the WLAN<br>4.2 Configure and test identification assignments to network elements<br>4.3 Configure and test authentication methods, using different sources of authentication<br>4.4 Configure and test encryption methods to comply with network security policies |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 5. Conduct WLAN maintenance and troubleshooting | 5.1 Evaluate WLAN troubleshooting methods for controllers, access points and client methodologies<br>5.2 Use networking tools to maintain and troubleshoot network<br>5.3 Transfer device configurations and operating system (OS), using maintenance tools and commands |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.6, 2.3, 4.4 | • Recognises and interprets complex technical documentation to determine and confirm job requirements |
| Writing | 1.1, 1.4, 1.5, 2.2 | • Develops a broad range of materials, including design and technical specifications, for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Numeracy | 3.2, 3.4, 4.2-4.4 | • Interprets numerical data and undertakes measurements to evaluate performance and interoperability of network |
| Navigate the world of work | 2.1, 2.3, 4.4 | • Monitors adherence to legal and regulatory rights and responsibilities for self and possibly others |
| Interact with others | 1.1, 1.4 | • Identifies and uses appropriate communication conventions and protocols when liaising with internal and external stakeholders on technical, operational and business-related matters |
| Get the work done | 1.1-1.3, 1.5-1.7, 2.2, 3.1-3.4, 4.1-4.4, 5.1- 5.3 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used |


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| | | |
|---|---|---|
| | | • Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, coordinating the process with others to identify functional, performance and management features associated with the operation of complex switched networks<br>• Uses understanding of context to troubleshoot and debug WAN issues, adapt configuration procedures to network requirements and reconfigure, depending on differing operational contingencies, risk situations and environments |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK605 Design and configure secure integrated wireless systems | ICANWK605A Design and configure secure integrated wireless systems | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK605 Design and configure secure integrated wireless systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and conduct a wireless local area network (WLAN) site survey
- produce design specifications and layout of wireless network
- configure and test a controller-based WLAN
- test wireless security configurations
- maintain a WLAN.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain authentication and encryption methods
- summarise configuration, verification and troubleshooting procedures regarding:
  - router-operation
  - routing virtual local area network (VLAN) switching
  - inter-switching communications
- outline configuration of WLAN securities
- clarify current wireless regulations, standards and certifications
- summarise internetwork operating system (IOS) and internet protocol (IP) networking models
- explain radio frequency (RF) and WLAN technology and network design
- outline RF propagation and implementation issues
- explain spread spectrum technologies
- summarise wireless network topologies and elements
- outline wireless networking protocols


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- describe WLAN devices, their specification and use
- summarise WLAN radio frequencies characteristics and their measuring techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site where network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- stand-alone and lightweight WLAN controllers and access point (AP)
- hardware and software WLAN site survey tools.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK606 Implement voice applications over secure wireless networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use network tools, equipment, software and protocols to design and integrate voice over wireless local area network (VoWLAN) services into the wireless local area network (WLAN), and to implement into the wireless network quality of service (QoS), multi-protocol label switching (MPLS), and high bandwidth applications.

It applies to individuals with excellent information communications and technology (ICT) skills who are working as wireless help desk technicians, wireless network support specialists and wireless network engineers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Specify requirements for voice over wireless architecture | 1.1 Analyse voice requirements for use over a wireless network<br>1.2 Specify wireless requirements for voice applications for design considerations |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Verify network for voice readiness and suitability |
| 2. Design the implementation of secure VoWLAN | 2.1 Configure wireless client devices<br>2.2 Design and configure the WLAN for VoWLAN with security configurations<br>2.3 Design and configure infrastructure devices<br>2.4 Devise structured troubleshooting methodology for VoWLAN implementation |
| 3. Design and implement QoS for wireless applications | 3.1 Plan general design considerations for wired QoS<br>3.2 Design wireless QoS deployment schemes<br>3.3 Configure WLAN equipment for QoS |
| 4. Design, implement and test multicast over wireless environment | 4.1 Evaluate general multicast concepts<br>4.2 Analyse the implications for multicast in 802.11<br>4.3 Configure multicast requirements for a wireless network<br>4.4 Devise structured troubleshooting methodology for multicast in a WLAN environment |
| 5. Plan and scope the wireless network for video and high-bandwidth applications | 5.1 Design and implement QoS for latency-sensitive applications<br>5.2 Analyse the requirement for video applications over 802.11n WLAN<br>5.3 Calculate and predict bandwidth requirements for video applications over the wireless network<br>5.4 Analyse the impact of the WLAN interconnectivity for devices on QoS for devices or the wired side |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Recognises and interprets complex technical documentation to determine and confirm job requirements |


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| | | |
|---|---|---|
| Writing | 1.2, 2.2-2.4, 3.2, 4.4, 5.1 | • Develops a range of material, including design and technical specifications, for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Numeracy | 5.3 | • Interprets numerical data and undertakes measurements to evaluate performance and interoperability of the network |
| Get the work done | 1.1-1.3, 2.1- 2.4, 3.1-3.3, 4.1-4.4, 5.1, 5.2, 5.4 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• May operate from a broad conceptual plan, coordinating the process with others to identify functional, performance and management features associated with the operation of complex VoWLAN services<br>• Uses nuanced understanding of context to troubleshoot and debug WLAN issues, adapt configuration procedures to network requirements and reconfigure depending on differing operational contingencies, risk situations and environments |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK606 Implement voice applications over secure wireless networks | ICANWK606A Implement voice applications over secure wireless networks | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK606 Implement voice applications over secure wireless networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and specify voice over wireless architecture requirements
- design and implement voice applications over wireless local area network (WLAN)
- implement a quality of service (QoS) for wireless applications
- use network tools to configure and test wireless infrastructure and applications
- plan and scope the wireless network bandwidth.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the configuration, verification and troubleshoot procedures required to undertake:
  - router operation and routing
  - virtual local area network (VLAN) switching and inter-switching communications
- summarise iDevice operating system (iOS) and internet protocol (IP) networking models
- outline video and high-bandwidth applications and requirements
- explain voice applications and protocols
- clarify voice over wireless local area network (VoWLAN) technologies
- describe the following aspects of wireless networks:
  - current regulations, standards and certifications
  - deployment schemes
  - network security technology
  - network topologies and elements
  - networking protocols


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- summarise WLAN devices and their specification and use.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site where network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- stand-alone and lightweight WLAN controllers and AP
- hardware and software LAN/WLAN voice technologies.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK607 Design and implement wireless network security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to mitigate security threats to a wireless local area network (WLAN) by implementing security standards and policies.

It applies to individuals with advanced information and communications technology (ICT) skills who are working as wireless help desk support technicians, wireless network support specialists and wireless network engineers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to implement wireless network security | 1.1 Research and evaluate organisational and regulatory security policies that have been used to benchmark acceptable network security standards<br>1.2 Assess customer requirements and needs against regulatory security compliance and work health and safety (WHS) considerations<br>1.3 Produce a plan with security solution documentation for future growth and security needs |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design, implement and test guest access services | 2.1 Analyse and select the appropriate architecture for guest access services<br>2.2 Produce a map and set up guest access accounts<br>2.3 Configure WLAN controller authorisation<br>2.4 Configure the anchor and internal controllers<br>2.5 Troubleshoot guest access issues |
| 3. Design, implement and test the security of wireless client devices | 3.1 Design and configure authentication of clients and management frame protection on clients and controllers<br>3.2 Configure access control servers for integration with wireless network<br>3.3 Configure client- and server-side digital certificate services<br>3.4 Troubleshoot secure wireless connectivity services |
| 4. Design, implement and test the integration of wireless network with organisational network admission control systems | 4.1 Analyse network admission control architectures to assess the feasibility of network integration<br>4.2 Analyse the high-level authentication process flow to ensure compatible integration<br>4.3 Configure and test the wireless controller for admission control<br>4.4 Troubleshoot integration issues of network with access control |
| 5. Evaluate and plan secure wireless connectivity services | 5.1 Configure the intrusion detection system (IDS) to monitor the network activities for malicious activities or policy violations<br>5.2 Analyse the report produced by the IDS to review threat-mitigation strategies<br>5.3 Update security solution plan to mitigate wireless vulnerabilities to ensure network integrity |
| 6. Manage the requirements to integrate the WLAN with advanced security platforms | 6.1 Evaluate end-to-end security solutions and assess how they integrate with the planned wireless solutions<br>6.2 Analyse the firewall configuration requirements of WLANs to ensure compliance with organisational policies<br>6.3 Configure and test the WLAN controllers for wired and wireless intrusion prevention and detection system (IPDS) security protection |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 5.2, 6.2 | • Recognises and interprets complex technical information to determine hardware requirements |
| Writing | 1.3, 2.2, 5.3 | • Develops a broad range of material including plans, maps and other documentation for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Numeracy | 4.2, 4.3, 5.2, 6.3 | • Interprets numerical data and undertakes measurements to evaluate performance and interoperability of network |
| Navigate the world of work | 1.1, 1.2, 6.2 | • Understands own legal rights and responsibilities, and considers implications of these when planning and undertaking work |
| Get the work done | 1.2, 2.1, 2.2-2.5, 3.1-3.4, 4.1-4.4, 5.1, 6.1- 6.3 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• Uses nuanced understanding of context to adapt configuration procedures to requirements of network, troubleshoot and debug WLAN issues and modify work depending on operational contingencies, risk situations and environments<br>• Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles that may be adaptable to future situations |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK607 Design and implement wireless network security | ICANWK607A Design and implement wireless network security | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK607 Design and implement wireless network security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- conduct research and produce a security solutions plan
- evaluate, design and implement a wireless local area network (WLAN) site security plan
- evaluate end-to-end security solutions and assess their integration with the planned wireless solutions
- use network tools to test wireless controllers and intrusion prevention and detection system (IPDS) solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain configuration, verification and troubleshooting procedures to undertake:
  - router operation and routing
  - virtual local area network (VLAN) switching and inter-switching communications
- outline iDevice Operating System (iOS) and internet protocol (IP) networking models
- explain intrusion prevention system (IPS) and intrusion detection system (IDS) security protection
- outline threat mitigation strategies
- summarise the following aspects of wireless, including:
  - current regulations, standards and certifications
  - deployment schemes


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  - network security technology
  - network topologies, architectures and elements
  - networking protocols
- summarise WLAN with reference to:
  - advanced security platforms
  - devices, their specification and use
  - radio frequency characteristics and their measuring techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site or prototype where network installation may be conducted
- hardware and software
- organisational guidelines
- live network
- stand-alone and lightweight WLAN controllers and access points (AP)
- hardware and software WLAN site survey tools
- hardware and software IDS and IPS.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK608 Configure network devices for a secure network infrastructure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use software tools, equipment and protocols to configure network devices in the design of the infrastructure of a secure network.

It applies to individuals with advanced information and communications technology (ICT) skills who adapt router and switch operating system capabilities to mitigate attacks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Implement layer 2 security | 1.1 Configure using router operating system (OS) commands to mitigate layer 2 attacks<br>1.2 Implement identity-based networking services (IBNS) on switches to provide layer 2 security<br>1.3 Implement identity management using access control system (ACS) as the authentication server |
| 2. Configure router OS | 2.1 Evaluate the advanced capabilities of router OS-IPS firewall |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| intrusion prevention system (OS-IPS) to mitigate threats to network resources | feature set to include event action processing (EAP) for threats to network resources<br>2.2 Configure and verify IPS features to identify threats and dynamically block them from entering the network<br>2.3 Maintain, update and tune the IPS signatures<br>2.4 Configure and verify context-based access control (CBAC) and network address translation (NAT) to dynamically mitigate identified threats to the network<br>2.5 Configure and verify zone-based firewall (ZFW) to include advanced application inspections and uniform resource locator (URL) filtering for improved network security |
| 3. Configure virtual private networks (VPNs) to provide secure connectivity for site-to-site and remote access communications | 3.1 Analyse and evaluate internet protocol security (IPSec) and generic routing encapsulation (IPSec/GRE) features and functionality<br>3.2 Configure secure connectivity for site-to-site VPN using certificate authorities<br>3.3 Analyse dynamic multipoint VPN (DMVPN) features and capabilities<br>3.4 Configure and verify secure connectivity for site-to-site VPN operations<br>3.5 Provide highly secure network access with secure socket layer (SSL) VPN to deliver remote access connectivity features and benefits<br>3.6 Evaluate EasyVPN benefits and configure EasyVPN server with dynamic virtual tunnel interface (DVTI) to create a virtual access interface on the virtual tunnel interface<br>3.7 Configure and verify EasyVPN remote to establish a site-to-site connection using both router and VPN software clients<br>3.8 Implement group-encrypted transport (GET) VPN features to simplify the provisioning and management of VPN |
| 4. Implement network foundation protection (NFP) | 4.1 Evaluate NFP features and functionality to provide infrastructure protection<br>4.2 Secure the management plane, the data plane and the control plane using OS features of the router |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2, 3.1, 3.3, 3.6, 4.1 | • Organises, evaluates and critiques ideas and information from a range of complex texts<br>• Draws on a broad range of strategies to build and maintain understanding throughout complex texts |
| Writing | 1.1-1.3, 2.2-2.5, 3.2, 3.4, 3.6, 3.7 | • Generates complex written texts, demonstrating control over a broad range of writing styles and purposes<br>• Writes and edits computer code and technical data ensuring correct syntax and accuracy |
| Numeracy | 2.2, 2.4, 2.5, 3.4, 3.7 | • Selects from, and flexibly applies, a wide range of highly developed mathematical and problem solving strategies and techniques in a broad range of contexts |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 4.1, 4.2 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK608 Configure network devices for a | ICANWK608A Configure network devices for a secure | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| secure network infrastructure | network infrastructure | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK608 Configure network devices for a secure network infrastructure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate network security system requirements
- design, implement and verify network security systems using layer 2 and layer 3 devices
- mitigate threats to network security
- configure virtual private networks (VPNs) for secure connectivity
- evaluate and implement network foundation protection (NFP).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain configuration, verification and troubleshooting procedures to undertake:
  - virtual local area network (VLAN) switching
  - inter-switching communications
- outline the key features of deployment schemes
- summarise setting up and securing firewalls
- explain iDevice operating system (iOS) and internet protocol (IP) networking models
- outline local area network (LAN) and wide area network (WAN) implementations
- explain network address translation (NAT) concepts and configuration
- outline network topologies, architectures and elements
- explain networking standards and protocols


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- outline procedures for configuring, verifying and troubleshooting router operations and routing
- summarise secure connectivity and remote access communications
- explain security protocols, such as secure socket layer (SSL)
- clarify threat mitigation strategies
- outline tunnelling protocols
- summarise VPN technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site or prototype where network security may be evaluated and tightened
- hardware and software
- organisational guidelines, procedures and policies
- computers
- hardware and software LAN and WLAN internetwork technologies
- hardware and software security technologies.

Assessors must satisfy NVR/AQTF assessor requirements

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK609 Configure and manage intrusion prevention system on network sensors

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use appropriate tools, equipment and software to implement an intrusion prevention system (IPS) on IPS sensors to mitigate network attacks.

It applies to individuals with advanced information and communications technology (ICT) skills who are working as certified IPS specialists, network security specialists and network security managers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate the ways IPS sensors are used to mitigate network attacks | 1.1 Evaluate system requirements of the network according to industry standards for inline operations<br>1.2 Compare inline to promiscuous mode sensor operations and evaluate how IPS protects network devices from attacks<br>1.3 Evaluate the evasive techniques used by hackers and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | determine ways IPS can defeat those techniques in the network<br>1.4 Evaluate the considerations necessary for selection, placement, and deployment of a network IPS, including using features of IPS signature |
| 2. Select and install IPS sensors and configure essential system parameters | 2.1 Install and initialise the sensor for configuration of sensor interfaces, interface pairs, virtual local area network (VLAN) pairs and VLAN groups<br>2.2 Configure management access to the sensor appliance and create user accounts to comply with different user roles<br>2.3 Set up sensor communications with external management and monitoring systems<br>2.4 Manage and monitor sensor operation using built-in tools<br>2.5 Upgrade and maintain IPS sensor parameters and licensing requirements to maintain network integrity<br>2.6 Plan the mitigation of specific network vulnerabilities and exploits |
| 3. Tune IPS sensor advanced system parameters to optimise attack mitigation performance | 3.1 Tune sensor signatures to provide optimal protection of the network<br>3.2 Create custom signatures and a meta signature to meet mitigation performance configurations for given test scenarios while disabling alert production for the component signatures<br>3.3 Configure gateway for passive operating system (OS) fingerprinting<br>3.4 Configure the external product interface to receive and process information from external security and management products to automatically enhance the sensor configuration information<br>3.5 Configure a virtual sensor and anomaly detection<br>3.6 Monitor the IPS advanced features for optimal performance |
| 4. Manage security and response of the IPS to network attacks | 4.1 Monitor IPS events using network tools to determine appropriate response to network attacks<br>4.2 Use network management tools to assess and manage IPS effectiveness against security intrusion |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4 | • Recognises and interprets complex technical and regulatory information to determine and confirm job requirements |
| Writing | 2.2, 2.5, 3.3-3.5 | • Demonstrates sophisticated writing skills by selecting appropriate conventions and stylistic devices to express precise meaning<br>• Writes and edits complex computer code and technical data, ensuring correct syntax and accuracy |
| Numeracy | 2.2-2.4, 3.6, 4.1 | • Selects from, and flexibly applies, a wide range of highly developed mathematical and problem solving strategies and techniques in a broad range of contexts |
| Navigate the world of work | 1.1, 2.5 | • Understands own legal rights and responsibilities, and considers implications of these when planning and undertaking work |
| Interact with others | 2.2, 2.3, 3.4, | • Develops and implements communications strategies with internal and external persons<br>• Shares knowledge, information and experience openly as an integral part of the working relationship |
| Get the work done | 1.1-1.4, 2.1-2.6, 3.1-3.6, 4.1, 4.2 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• Recognises that identified ‘problems’ can be surface indicators of deeper issues and routinely reframes problem definitions as part of the process of identifying |


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| | | |
|---|---|---|
| | | a root cause |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK609 Configure and manage intrusion prevention system on network sensors | ICANWK609A Configure and manage intrusion prevention system on network sensors | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK609 Configure and manage intrusion prevention system on network sensors

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate intrusion prevention system (IPS) requirements and configure IPS sensors
- tune up IPS sensors to optimise attack mitigation
- use network tools and network management tools to monitor and manage security sensor events
- upgrade and maintain IPS sensors.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain configuration, verification and troubleshooting procedures to undertake a switch and router operation and routing protocol
- outline deployment schemes
- summarise setting up and securing firewalls
- summarise internetwork operating system (IOS) and internet protocol (IP) networking models
- explain IP addressing and detailed understanding of the transmission control protocol (TCP) or IP stack
- outline IPS and intrusion detection system (IDS) strategies
- explain IPS sensor technologies and licensing requirements
- outline local area network or wide area network (LAN/WAN) implementations and design
- summarise network topologies, architectures and elements
- outline networking standards and protocols
- explain signatures and meta signatures


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- explain threat mitigation strategies
- explain virtual local area network (VLAN) concepts and functionality
- outline virtual private network (VPN) technologies
- identify and describe legislation, regulations, standards and codes of practice relevant to network security.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site or prototype where network installation may be conducted
- relevant hardware and software
- organisational guidelines
- live network
- an IPS system and its sensors.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK610 Design and build integrated VoIP networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use appropriate tools, equipment, software and protocols to design and build an internet protocol (IP) based integrated voice network for small-to-medium enterprises.

It applies to individuals with advanced information and communications technology (ICT) skills who are working as voice over internet protocol (VoIP) network support specialists, VoIP network engineers and VoIP systems installers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan design concepts of a voice network for specified voice quality | 1.1 Determine the design requirements of an IP-based voice network, including the choice of network elements<br>1.2 Evaluate the various applications of real-time protocols and of signalling protocols for an appropriate gateway<br>1.3 Design a site numbering plan, including digit manipulation and path selection process |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Plan and assign calling privileges as required<br>1.5 Predict VoIP call flow and potential impact on voice quality considerations and network performance |
| 2. Design, configure implement and test voice protocols and interoperation of VoIP communications network | 2.1 Produce the design layout of the voice network according to the design requirements<br>2.2 Design and configure a gateway and a gatekeeper to using H.323 protocol suite for dial plan resolution and call admission control for the network<br>2.3 Configure and test the use of real-time protocols, call management protocols and gateway signalling protocol in the network design<br>2.4 Analyse the function and interoperation of gatekeepers within an IP communications network |
| 3. Design, configure and test a VoIP IP-to-IP call system | 3.1 Analyse the IP-to-IP gateway features and functionality requirements for a given network design requirement<br>3.2 Configure the gatekeeper to support an IP-to-IP gateway<br>3.3 Configure and test the IP-to-IP gateway to provide address hiding, protocol and media interworking, and call admission control implementations<br>3.4 Produce test results and evaluate against design requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.1, 3.4 | • Recognises and interprets complex technical information to determine and adhere to design requirements |
| Writing | 1.3, 2.1, 3.4 | • Develops a broad range of material including test results, planning and design documentation for a specific audience using clear and detailed language in order to convey explicit information, requirements and recommendations |
| Numeracy | 1.3, 1.5, 2.3, 3.3, 3.4 | • Interprets numerical data in the planning phase and undertakes measurements to evaluate performance and |


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| | | |
|---|---|---|
| | | interoperability of network |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 2.2-2.4, 3.1-3.3 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• May use formal analytical and lateral thinking techniques for identifying issues and generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK610 Design and build integrated VoIP networks | ICANWK610A Design and build integrated VoIP networks | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK610 Design and build integrated VoIP networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine requirements and produce a concepts design of a voice over internet protocol (VoIP) network
- produce a design layout
- configure and test voice gateways
- design site numbering plan, dial plans and priorities
- use networking and network management tools
- configure and test real-time protocols, call management protocols and gateway signalling protocol in the network elements
- implement voice systems and applications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain codecs and their protocols for use
- summarise configuration, verification and troubleshooting procedures to undertake basic router operation and routing switch with VLANs and inter-switching communications
- outline design considerations and deployment schemes
- explain gateway technologies
- summarise internetwork operating system (IOS) and internet protocol (IP) networking models
- outline procedures and techniques for implementing local area network/wide area network (LAN/WAN) topologies
- explain network topologies, architectures and elements
- identify and describe networking standards and protocols


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- outline voice applications and protocols
- explain VoIP technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site where network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- stand-alone and lightweight wireless local area network (WLAN) controllers and access point (AP)
- hardware and software local area network LAN/WLAN voice technologies.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK611 Configure call processing network elements for secure VoIP networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use tools, equipment, software and protocols to install or upgrade call processing network elements for secure and reliable internet protocol (IP)-based communications networks.

It applies to individuals with advanced information communications technology (ICT) skills who are working as advanced voice over internet protocol (VoIP) network support specialists, VoIP network engineers and VoIP systems installers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to implement enterprise IP communications | 1.1 Produce design considerations for planning and implementing IP-based voice communications networks<br>1.2 Produce a solutions plan to meet business expectations<br>1.3 Select the required resources to effectively install or upgrade voice management servers |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Perform, test and evaluate the installation or upgrade of voice call management software against the solutions plan |
| 2. Plan, configure and test call processing network elements for a single-site deployment | 2.1 Produce a topology of the voice network and plan the location of the call processing network elements to best support the business requirements<br>2.2 Install and test voice servers to support user requirements, third-party session initiation protocol (SIP) phones and lightweight directory access protocol (LDAP) integration<br>2.3 Install and configure local area network (LAN) switches to support IP phones<br>2.4 Configure and test voice gateways according to gateway requirements to allow for internal calls and external calls and provide voice features<br>2.5 Configure and test the integration of voice servers with other media systems<br>2.6 Test and evaluate final configuration against the design requirements |
| 3. Manage security and privacy of IP voice network | 3.1 Produce design and installation templates for bulk deployment across the enterprise<br>3.2 Research and implement the use of a network support model to manage the performance and security of the IP voice network<br>3.3 Design and conduct simple security deployment scenarios to test the integrity and security of the voice network |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 2.4, 2.6, 3.2 | • Recognises and interprets complex technical information to determine and adhere to design requirements |
| Writing | 1.1, 1.2, 2.1, 3.1 | • Develops a broad range of material, including planning documentation, design and installation templates for a specific audience using clear and detailed language to |


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| | | |
|---|---|---|
| | | convey explicit information, requirements and recommendations |
| Numeracy | 1.3, 1.4, 2.2, 2.4-2.6 | • Interprets numerical data in planning phase and undertakes measurements to evaluate performance and interoperability of network<br>• Uses mathematical formulas and calculations to estimate and plan resource requirements |
| Get the work done | 1.1, 1.3, 1.4, 2.1-2.6, 3.2 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world, and uses these to troubleshoot and understand the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• May use formal analytical and lateral thinking techniques for identifying issues and generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK611 Configure call processing network elements for secure VoIP networks | ICANWK611A Configure call processing network elements for secure VoIP networks | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK611 Configure call processing network elements for secure VoIP networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce design plan and requirements of call processing network elements
- configure and test voice gateways and local area network (LAN) switches
- evaluate voice call manager server requirements and design voice call systems and applications
- implement voice systems and applications on voice call manager
- manage security of voice network.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise call processing network element technology
- outline codecs and their protocols for use
- explain configuration, verification and troubleshoot procedures to undertake:
  - basic router operation and routing
  - switch with virtual local area network (VLANs) and inter-switching communications
- summarise design considerations and deployment schemes
- explain interoperability of legacy private branch exchange (PBX) to internet protocol (IP) voice communications
- outline internetwork operating system (IOS) and IP networking and network support models
- summarise LAN and wide area network (WAN) implementations
- outline network topologies, architectures and elements
- summarise network, signalling and call management protocols


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- outline networking standards and protocols
- summarise security deployment scenarios
- explain voice applications and protocols
- outline voice over internet protocol (VoIP) technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- site where network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- stand-alone and lightweight WLAN controllers and access points (AP)
- hardware and software LAN/WLAN voice technologies.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan, manage and implement troubleshooting and monitoring strategies to ensure reliability and performance on advanced integrated internet protocol (IP) networks.

It applies to individuals with advanced information and communications technology (ICT) skills who are working as advanced support engineers, network support specialists and ICT network engineers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan the strategies for troubleshooting and monitoring the performance of advanced integrated IP networks | 1.1 Develop a plan to monitor and manage the IP network to optimise its performance and reliability<br>1.2 Plan the isolation of network segments for troubleshooting procedures<br>1.3 Plan the testing sequences and scenarios of network |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | infrastructure<br>1.4 Select appropriate network testing and monitoring tools, and software application to suit the specific network troubleshooting and monitoring sequence |
| 2. Manage and monitor troubleshooting strategies for complex enterprise networks | 2.1 Manage and monitor strategies for network monitoring structure<br>2.2 Produce a routine internetwork operating system (IOS) device maintenance plan to include monitoring of routing protocols and router configurations<br>2.3 Isolate sub-optimal internetwork operations at the appropriate open systems interconnection (OSI) model layer<br>2.4 Produce a plan for troubleshooting and monitoring security issues related to IOS services for mission critical applications<br>2.5 Produce a plan for troubleshooting and monitoring internet protocol version 6 (IPv6) and version 4 (IPv4) interoperability |
| 3. Implement test plans for advanced network solutions | 3.1 Test switch-to-switch connectivity, access ports and loop prevention for the virtual local area network (VLAN) based solution<br>3.2 Test private VLANs<br>3.3 Test switch virtual interfaces (SVI)<br>3.4 Test switch support of advanced services<br>3.5 Troubleshoot switch configuration |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2-1.4, 2.2, 2.4, 2.5 | • Organises, evaluates and critiques ideas and information from a range of complex texts |
| Writing | 1.1, 2.2, 2.4, 2.5 | • Develops a broad range of material, including troubleshooting plans for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |


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| | | |
|---|---|---|
| Numeracy | 3.1-3.4 | • Interprets numerical data when testing plans for advanced network solutions, including taking measurements to evaluate performance and interoperability of network |
| Get the work done | 1.2-1.4, 2.1-2.5, 3.1-3.4 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to generate possible solutions depending on differing operational contingencies, risk situations and environments |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks | ICANWK612A Plan and manage troubleshooting advanced integrated IP networks | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and monitor internet protocol (IP) networks for performance and reliability
- evaluate, design and implement a troubleshooting structured plan
- use network testing and monitoring tools
- produce a maintenance plan for monitoring routing protocols and configurations
- implement tests of advanced network solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise advanced network solutions
- explain configuration, verification and troubleshoot procedures to undertake:
  - router operation and routing
  - virtual local area networks (VLANs) switching and inter-switching communications
- outline deployment schemes
- explain iDevice operating system (iOS) and IP networking models
- explain IOS services
- explain IP network topologies, architectures and elements
- identify and describe network testing and monitoring tools
- outline networking standards and protocols
- summarise threat mitigation strategies
- outline VLAN technologies.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a site where complex network installation may be conducted
- hardware and software
- organisational guidelines
- computers
- local area network (LAN) and wide area network (WAN) systems, including voice and video hardware and software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK613 Develop plans to manage structured troubleshooting process of enterprise networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage the maintenance of a complex integrated enterprise network to ensure availability and performance standard.

It applies to individuals with advanced information and communications technology (ICT) skills who are working in a wide range of roles including network specialists, network engineers, network infrastructure engineers, senior network administrators, network and systems managers, ICT security specialists, security engineers, communications engineers and communications managers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan the strategies for structured troubleshooting and monitoring of enterprise networks | 1.1 Develop strategies to monitor and manage an enterprise network to ensure availability and performance standard<br>1.2 Conduct equipment and skills audits as required<br>1.3 Evaluate the business value of service level agreements (SLAs), formal maintenance plans and monitoring procedures |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | against best practices for maintenance and fault procedures<br>1.4 Assign functional responsibilities to stakeholders according to the maintenance plan<br>1.5 Select and use appropriate network fault management tools and monitor and improve network performance |
| 2. Manage and monitor structured troubleshooting strategies for complex enterprise networks | 2.1 Implement structured network maintenance management processes and procedures in line with enterprise design plans and policies for ensuring high network reliability<br>2.2 Undertake risk assessment evaluation and rank threats for minimal impact<br>2.3 Develop and implement disaster recovery strategies for reliable contingencies and business continuity in a complex routing environment<br>2.4 Measure and analyse performance against an agreed baseline |
| 3. Conduct structured network<br>troubleshooting strategies | 3.1 Analyse and troubleshoot layer 2 and 3 switch configuration to ensure the availability and resilience of a switched environment<br>3.2 Implement effective control of broadcast and multicast traffic in a switched environment<br>3.3 Analyse and troubleshoot scalable network layer connectivity with routing data structures and routing functions<br>3.4 Analyse and troubleshoot enterprise intra and internetwork routing protocols, architectures and processes<br>3.5 Analyse and troubleshoot route redistribution operations in inter-autonomous system routing architectures and processes<br>3.6 Test and manage internet protocol version 6 (IPv6) and version 4 (IPv4) addressing schema and verify internal and external internet protocol (IP) address translation standards<br>3.7 Analyse and troubleshoot communication filtering techniques, automated address allocation systems and IPv6 operational issues in the context of enterprise routing protocols<br>3.8 Analyse and troubleshoot wireless network configuration issues<br>3.9 Analyse and resolve network performance issues in an integrated voice or video network |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.4, 2.1 | • Identifies, analyses and evaluates complex text to determine all technical, regulatory and business requirements |
| Writing | 1.1, 2.2, 2.3 | • Develops a broad range of operational material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.4 | • Initiates and contributes to a range of complex conversations about technical concepts and issues relevant to personnel, responding, clarifying, explaining and expanding on information as required |
| Numeracy | 1.2, 1.3, 2.4 | • Interprets numerical data when testing plans for advanced network solutions, including taking measurements to evaluate performance and interoperability of network |
| Navigate the world of work | 2.1 | • Recognises protocols and policies that must be respected and maintained |
| Get the work done | 1.1, 1.3-1.5, 2.1-2.4, 3.1-3.9 | • Recognises the critical importance of clarifying, focussing and aligning goals and expectations, and may use the process to build ownership of and broad commitment to achieving outcomes<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to generate possible solutions, depending on differing operational contingencies, risk situations and environments |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK613 Develop plans to manage structured troubleshooting process of enterprise networks | ICANWK613A Develop plans to manage structured troubleshooting process of enterprise networks | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK613 Develop plans to manage structured troubleshooting process of enterprise networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse, document and troubleshoot a given complex network using industry methodologies and resources
- develop monitoring and management plans
- use networking and network fault management tools
- evaluate risk assessments and minimise threats on enterprise networks.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline benefits of a formal or structured approach to network management
- explain disaster recovery strategies
- summarise emerging viable business and social technologies
- outline enterprise network technologies, design plans and policies
- summarise enterprise network topologies, architectures and elements
- outline external developments or factors that affect network design
- explain internet protocol version 4 (IPv4) and internet protocol version 6 (IPv6) addressing configurations
- outline maintenance and fault procedures
- explain maintenance and management tools and practices suitable for complex networks
- outline networking standards and protocols
- summarise risk management strategies and practices suitable for a complex network environment
- clarify routing and routed protocols


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- outline routing and switching technologies for an enterprise environment
- summarise security for enterprise networks
- outline security standards and technologies for network environments
- explain service level agreements (SLAs)
- describe the value and process of conducting a skills audit
- explain troubleshooting and threat mitigation strategies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- a location where the network configuration can be implemented
- routers and switches with appropriate operating systems
- computers
- suitable testing and analysis tools.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK614 Manage ICT security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage data security, enterprise continuity, incidents, networks and telecommunications security, and system and application security.

It applies to individuals with managerial responsibility and advanced information and communications technology (ICT) skills who are working as experienced security technical specialists, security analysts and security consultants.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage enterprise security parameters | 1.1 Determine and evaluate parameters that affect enterprise security to establish benchmark<br>1.2 Review security classification and data management policies and procedures for relevance, and update if required<br>1.3 Plan and coordinate an effective enterprise continuity of operations (COOP) program and organisational structure for critical business continuity |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Develop a plan to address factors to manage the risks of the enterprise<br>1.5 Integrate and evaluate risk management concepts into operational activities with related contingency planning activities, using an enterprise COOP performance measurement program<br>1.6 Evaluate and assess security incidents to establish an effective incident management program for the enterprise<br>1.7 Manage the coordination between related security teams for effective incident management processes and procedures |
| 2. Manage networks and telecommunications security | 2.1 Develop a network security and telecommunications program in line with enterprise policy and security goals<br>2.2 Manage the necessary resources to integrate network security and telecommunications program activities with technical support, security administration and incident response activities in a secure network<br>2.3 Establish effective communications protocols between the network security and telecommunications team and related security teams to manage the risks<br>2.4 Establish a performance measurement program to evaluate the security effectiveness of the integrated network security and telecommunications network<br>2.5 Ensure enterprise compliance with applicable network-based documents, and that network-based audits and management reviews are conducted to implement process improvement |
| 3. Implement and document enhancements | 3.1 Implement appropriate changes and improvement actions as required, and evaluate effectiveness of enhancements<br>3.2 Produce and table documentation for audit tracking |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.2, 1.5, 1.6, 2.1, 2.5 | • Identifies, analyses and evaluates complex text to determine regulatory and business requirements |
| Writing | 1.2, 1.4, 1.6, 2.1, 2.3, 2.4, 3.2 | • Develops a broad range of operational material, including recommendations and reports for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Numeracy | 2.2 | • Uses mathematical formulas and calculations to estimate and plan project costs |
| Navigate the world of work | 1.2, 2.3-2.5 | • Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are being met<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements in order to implement and manage change |
| Interact with others | 1.7, 2.2-2.5, 3.1 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact<br>• Influences and fosters a collaborative culture, facilitating a sense of commitment and workplace cohesion<br>• Understands diversity and seeks to integrate diversity into the work context, for managing change, making decisions and achieving shared outcomes |
| Get the work done | 1.3-1.6, 2.1- 2.5, 3.1 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand the uses and potential of new technology<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to generate possible solutions, depending on differing operational contingencies, risk situations and environments<br>• Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles that may be adaptable to future situations |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK614 Manage ICT security | ICANWK614A Manage IT security | Updated to meet Standards for Training Packages.<br><br>Minor change to competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK614 Manage ICT security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- direct contingency planning, operations and programs to manage risk
- establish the information and communications technology (ICT) system and application security engineering program
- manage the necessary resources to establish and maintain an effective network security and telecommunications program
- specify policy and coordinate review.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain business and commercial issues related to the management of ICT security
- explain continuity of operations (COOP)
- clarify critical analysis in a management context
- outline management specifications and objectives
- describe different management styles and systems
- explain systems development life cycle (SDLC).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking industry, and include access to:

- ICT business specifications
- ICT security assurance specifications
- management related scenarios


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- a security environment, including the threats to security that are, or are held to be, present in the environment
- information on the security environment, including:
  - laws or legislation
  - existing organisational security policies
  - organisational expertise
  - use of risk analysis tools and methodologies currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK615 Design and configure desktop virtualisation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, and configure, the desktop virtualisation technologies needed to support an enterprise virtualisation business solution.

It applies to senior networking staff responsible for increasing the sustainability of an enterprise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare the design specifications and plan to implement enterprise desktop environments | 1.1 Research the available desktop virtualisation software vendors<br>1.2 Evaluate the desktop virtualisation environment<br>1.3 Analyse and compare, the features and components of desktop virtualisation environment<br>1.4 Identify the desktop-specific design objectives, requirements and limitations<br>1.5 Document the design infrastructure, according to the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | enterprise requirements<br>1.6 Plan implementation and deployment, using the recommended design |
| 2. Implement and configure the desktop virtualisation infrastructure and services | 2.1 Assess the desktop virtualisation software and analyse its relevance to the enterprise requirements<br>2.2 Install and configure the desktop virtualisation environment<br>2.3 Implement specific features and functions, in order to provide suitable solutions to identified problems<br>2.4 Implement and manage the testing process<br>2.5 Apply desktop virtualisation technologies, to an accepted industry standard |
| 3. Implement the application virtualisation | 3.1 Plan the implementation and deployment of the application virtualisation software<br>3.2 Configure and test the application virtualisation system's components<br>3.3 Maintain, update and tune, the system's components |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1 | • Organises, evaluates and critiques ideas, and information, from a wide range of complex texts |
| Writing | 1.5, 3.1 | • Demonstrates sophisticated writing skills by selecting the appropriate conventions and stylistic devices, to express the precise meaning |
| Navigate the world of work | 1.5, 2.1, 2.5 | • Works autonomously, making high-level decisions to achieve, and improve, organisational goals<br>• Develops and implements strategies that ensure that organisational policies, procedures and regulatory requirements are being met |
| Get the work done | 1.2-1.4, 1.6, 2.2-2.5, 3.2, 3.3 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands |


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| | | |
|---|---|---|
| | | • Makes high-impact decisions in a complex and diverse environment, using input from a range of sources<br>• Identifies the key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision- making strategies, where appropriate<br>• Uses digital technologies to manage business operations, and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK615 Design and configure desktop virtualisation | ICANWK615A Design and configure desktop virtualisation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK615 Design and configure desktop virtualisation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, configure and manage the implementation of the virtualised enterprise desktop environment
- analyse and critically evaluate, the features and functions of the virtualised enterprise desktop environment
- plan, configure and maintain, the application virtualisation software.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- research current government and industry policies, and guidelines, relating to the development of efficient and reliable, information and communications technology (ICT) environments
- research the current technologies and processes designed to produce an efficient and reliable ICT environment
- determine the structure, functions and business organisation of the client
- identify and apply, the available tools and software applications required to manage the virtual desktop environment
- formulate the configuration of software applications required to manage the virtual desktop environment
- formulate the configuration required to integrate virtual machines into the existing network design.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- a site where industry-specific technologies may be used
- industry-specific technologies currently used in the industry
- documents detailing workplace health and safety (WHS) standards, environmental guidelines and enterprise requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK616 Manage security, privacy and compliance of cloud service deployment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage cloud security controls, and privacy and legal compliance, when implementing cloud services for an enterprise.

It applies to those with managerial responsibility, such as experienced security technical specialists, security analysts and security consultants.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage enterprise cloud security controls | 1.1 Identify the cloud security issues faced by different delivery and deployment models relevant to the enterprise<br>1.2 Determine the specific enterprise areas of security responsibility<br>1.3 Implement the most relevant security controls and measures, to protect identified areas of responsibility |
| 2. Manage enterprise | 2.1 Identify the relevant compliance regulations relating to data |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| cloud privacy and compliance | storage<br>2.2 Determine the most relevant business continuity and data recovery plans<br>2.3 Identify, secure and maintain, the relevant logs and audit trails<br>2.4 Investigate and review legal, privacy and contractual issues to ensure that they meet the enterprise policy |
| 3. Review, implement and document cloud security, privacy and compliance enhancements | 3.1 Implement the appropriate changes, and integrate them into the current enterprise's continuity of operation program (COOP)<br>3.2 Establish a performance measurement program, to evaluate the security effectiveness of implemented security controls<br>3.3 Provide relevant documentation as part of COOP, for audit tracking purposes |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.3, 2.4 | • Organises, evaluates and critiques ideas, and information, from a wide range of complex texts |
| Writing | 2.3, 3.3 | • Demonstrates sophisticated writing skills by selecting the appropriate conventions and stylistic devices, to express precise meaning |
| Navigate the world of work | 1.1 | • Works autonomously making high-level decisions to achieve, and improve, organisational goals<br>• Develops and implements strategies, that ensure that organisational policies, procedures and regulatory requirements are being met |
| Get the work done | 1.2, 1.3, 2.1-2.4, 3.1-3.3 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment, exposed to competing demands<br>• Gathers and analyses data, and seeks feedback to improve plans and processes<br>• Makes high-impact decisions in a complex and diverse |


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| | | |
|---|---|---|
| | | environment, using input from a range of sources<br>• Identifies the key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision- making strategies, where appropriate<br>• Explores and incubates, new and innovative ideas, through unconstrained analysis and critical thinking, to develop and improve the organisation's goals |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTNWK616 Manage security, privacy and compliance of cloud service deployment | ICANWK616A Manage security, privacy and compliance of cloud service deployment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK616 Manage security, privacy and compliance of cloud service deployment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify, manage and implement cloud security controls, according to legal and privacy requirements
- integrate the cloud security plans into the enterprise's existing security plans
- develop an ongoing performance measurement and evaluation review process.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- review the business and commercial issues relating to the management of cloud security
- research the legislation, organisational and jurisdictional policy and procedures that may impact on management areas including:
  - cloud-related privacy issues
  - codes of ethics and conduct
  - equal employment opportunity, equity and diversity principles
  - financial management requirements
  - governance requirements
- determine management specifications and objectives
- identify the management tools and techniques suited to a range of complex project activities
- describe the organisational and political context
- evaluate the systems development life cycle (SDLC)
- determine the techniques for critical analysis in a management context.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the network industry, and include access to:

- the cloud information and communications technology (ICT) business specifications
- the cloud ICT security assurance specifications
- management-related scenarios
- a cloud-focused security environment, including threats to security that are, or are held to be, present in the environment
- information on the security environment, including:
  - laws or legislation
  - existing enterprise security policies
  - enterprise expertise
- risk analysis tools and methodologies currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTNWK617 Configure and manage a storage area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit addresses the knowledge, processes and techniques necessary to configure and manage a Storage Area Network (SAN) which are widely used in the enterprise datacenter space and when coupled with server virtualisation technology, form the basis for highly available datacentres.

It applies to specialist technicians and storage engineers who manage and maintain highly available data storage in a networked environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Networking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine specifications for a Storage Area Network | 1.1 Analyse and document client requirements.<br>1.2 Analyse and document the required topology to support a storage area network.<br>1.3 Analyse and determine the required storage capacity according to current and future business requirements.<br>1.4 Determine the storage protocols to be used to meet |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | organisational requirements.<br>1.5 Determine the requirements for network management, backup, security and redundancy, according to organisational policy.<br>1.6 Analyse and recommend a SAN model based on client design requirements. |
| 2. Configure network settings on a Storage Area Network filer/node. | 2.1 Configure the initial SAN Network settings to facilitate network communication using the recommended process.<br>2.2 Configure Management Interface address to allow configuration of remaining network interfaces.<br>2.3 Create logical interfaces to support network-attached storage (NAS) protocols<br>2.4 Create logical interfaces to support SAN protocols<br>2.5 Configure virtual local area networks (VLAN) to segment the network according to the design brief |
| 3. Provision storage | 3.1 Create aggregate/s using recommended redundant array of independent disks (RAID) levels in accordance with the documented design brief.<br>3.2 Create logical volume/s in accordance with the documented design brief.<br>3.3 Create logical unit number/s (LUN) in accordance with the documented design brief.<br>3.4 Provision a share using NAS protocols in accordance with the documented design brief.<br>3.5 Provision storage using SAN protocols in accordance with the documented design brief. |
| 4. Connect client and/or server to provisioned storage. | 4.1 Connect client and/or server to shared storage using NAS protocols and verify operations.<br>4.2 Connect client to shared storage using SAN protocols and verify operations. |
| 5. Configure advanced Storage Area Network Features. | 5.1 Provision and test SAN based volume snapshot operations.<br>5.2 Provision and test SAN based data deduplication operations. |
| 6. Configure Backup and Disaster recovery features. | 6.1 Provision and test SAN based data replication operations.<br>6.2 Provision and test SAN based backup and restore operations. |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2 | • Recognises and interprets technical and organisational documentation to determine and confirm job requirements. |
| Writing | 1.1, 2.2, 3.1, 3.3 | • Develops a range of workplace documentation for a specific audience using clear and detailed language in order to convey explicit information, requirements and recommendations. |
| Oral Communication | 1.1, 3.1 | • Uses listening and questioning skills to confirm understanding for requirements<br>• Establishes and maintains complex and effective spoken communication in a broad range of contexts |
| Navigate the world of work | 1.4, 1.5 | • Recognises and responds to both explicit and implicit protocols within familiar work contexts and appreciates the importance of identifying and responding to protocols in new situations |
| Get the work done | 1.2, 2.1, 2.2, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 5.1,5.2, 6.1, 6.2 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• May operate from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, identifying and addressing issues<br>• Actively identifies systems, devices and applications with potential to meet current and/or future needs<br>• Uses nuanced understanding of context to recognise anomalies in a virtualised machine environment and subtle deviations to normal expectations, focussing attention and remedying problems promptly |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTNWK617 Configure and manage a storage area network | Not applicable | New unit | No Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTNWK617 Configure and manage a storage area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine and document the specifications for a Storage Area network (SAN) solution
- select the appropriate SAN solution to meet the client requirements
- document and design a SAN solution that includes backup, security and redundancy
- install and configure a storage cluster, either physically or in a simulated/virtualised environment
- configure network settings to facilitate management of a SAN
- verify and troubleshoot network connectivity
- configure network protocols to facilitate storage access via a client/server environment
- provision shared storage using suitable protocols
- configure and use advanced SAN features if available
- monitor and report on capacity utilization
- resize existing storage to increase the size of existing datastores
- create new datastores utilising capacity on a storage system.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the function and applications of the following network protocols:
  - common internet file system CIFS
  - sever message block (SMB)
  - network file system (NFS)
  - internet small computer system interface (iSCSI)
  - fibre channel (FC)


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    - fibre channel over Ethernet (FCOE)
- describe the advanced SAN features including:
    - snapshots
    - data deduplication
    - flexible volumes
    - replication
    - backup and restore
- describe the advantages and disadvantages of storage area networks (SAN) versus direct attached storage (DAS) devices
- identify and describe common hard drive types including:
    - serial attached SCSI (small computer system interface) -SAS
    - serial ATA (SATA)
    - solid state disk (SSD)
- identify and describe common network cable types and connectors
- outline the common network topologies
- describe the implementation and configuration of SANs
- recognise and describe redundant array of independent disks (RAID) configurations and state their application in data storage
- describe which features of advanced storage systems can be applied in server and/or virtualized environments
- describe the functional and interconnection relationship between storage systems and servers in server and/or virtualized environments
- describe how storage systems can protect against data storage failures and the functional process for recovering data.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the networking field of work and include access to:

- site or prototype where a storage area network may be implemented
- storage area network appliance or simulated appliance
- network technical requirements
- appropriate software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN401 Install and test a dense wavelength division multiplexing system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install dense wavelength division multiplexing (DWDM) equipment in optical networks.

It applies to individuals who interpret installation manuals and use technical skills to prepare for and conduct system tests and commissioning.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install DWDM units | 1.1 Determine number of racks and DWDM units at each site by referring to installation documents<br>1.2 Determine DWDM unit and equipment positions within the individual racks<br>1.3 Assemble equipment racks according to safe industry practice and manufacturer’s instructions |


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| | |
|---|---|
| | 1.4 Select tools and equipment<br>1.5 Prepare patch panels with connectors according to installation plan |
| 2. Install DWDM units and associated cabling | 2.1 Install DWDM unit in the designated rack position to maintain the planned link budget margin<br>2.2 Install patch panels and ancillary equipment and connections into equipment rack in preparation for commissioning procedures<br>2.3 Insert circuit cards into specified slot locations in readiness for commissioning procedures, but do not seat cards into backplane nor lock into position at this stage<br>2.4 Connect optical fibre cables between circuit cards, optical multiplexers, adjoining DWDM units and patch panels according to manufacturer's specifications |
| 3. Test power connections and complete installation report | 3.1 Measure main and redundant power supplies to verify correct polarity of ground and power connections<br>3.2 Rectify any identified power wiring fault if applicable<br>3.3 Confirm cooling fans, panel lights, indicator lights and alarms behave according to manufacturer's prescribed specifications when power is applied<br>3.4 Complete installation report and reinstate site |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance*.

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.3, 1.5, 2.4, 3.3 | • Interprets textual information from relevant sources to identify and adhere to procedures and standards |
| Writing | 3.4 | • Uses clear, specific and industry related terminology to complete and update workplace documentation |
| Numeracy | 1.1, 2.1, 3.1 | • Uses mathematical formulae to calculate measurements and determine equipment requirements |
| Navigate the world of work | 1.3, 3.4 | • Recognises and follows explicit and implicit protocols and meets expectations associated with own role |


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| | | |
|---|---|---|
| | | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context with specific reference to workplace safety |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 2.1-2.4, 3.1-3.4 | • Implements actions according to a pre-determined plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when responding to familiar problems within immediate context<br>• Reflects on the ways digital systems and tools are used, or could be used to achieve work goals and begins to recognise strategic and operational applications |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN401 Install and test a dense wavelength division multiplexing system | ICTOPN4115A Install and test a dense wavelength division multiplexing system | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN401 Install and test a dense wavelength division multiplexing system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine the dense wavelength division multiplexing (DWDM) requirements for a site
- install a DWDM system and associated cabling according to plans and specifications
- test installation for operation, power and ground connections
- analyse test results and rectify faults
- complete and submit an installation report.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain DWDM principles of operation
- outline managing risk of electrostatic discharge
- outline optical fibre connector types and characteristics
- summarise optical fibre types and characteristics
- outline specific workplace health and safety requirements that impact the safe measurement and inspection of optical connectors and optical power from laser transmission systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:


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- tools and equipment requirement for installation
- a range of optical fibres to suit the installation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN402 Use advanced optical test equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to test optical communication systems and components using advanced optical test equipment. It involves using the optical time domain reflectometer (OTDR), optical spectrum analyser (OSA) and optical return loss (ORL) test set for performance testing and link budget calculation.

It applies to individuals who combine technical skills with organisational and administrative skills. They may be installation contractors, technical staff and field officers from telecommunications carriers or other private and public organisations or regulatory authorities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use advanced optical measuring instruments | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Notify customer for site access, security arrangements and location |


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| | |
|---|---|
| | details of optical system and test purpose<br>1.3 Identify site hazards and notify appropriate personnel to make site safe<br>1.4 Devise and implement risk control measures of hazards with handling of optical fibres and lasers in consultation with appropriate personnel<br>1.5 Prepare a testing plan indicating the type of measurement, procedures and nominated wavelength, and seek approval from customer<br>1.6 Select appropriate tools and test instruments according to required measurement and enterprise practice |
| 2. Evaluate optical performance and link budget using advanced optical test equipment | 2.1 Set up test instrument according to manufacturer's instructions and work health and safety (WHS) and environmental requirements<br>2.2 Perform measurement using knowledge of appropriate testing techniques and advanced test equipment in a safe manner to evaluate performance of optical system and component<br>2.3 Record test results and compare with standard test specifications from manufacturer's and enterprise guidelines<br>2.4 Perform end-to-end measurements on an optical link to a customer and record test results and test points<br>2.5 Calculate optical losses for a link budget figure of an optical link to determine if within operational margins as specified in manufacturer's manual<br>2.6 Evaluate test results and report on functionality of the optical component or equipment and performance of the optical link |
| 3. Document measurement results | 3.1 Document test results for future reference and make recommendations on optimising component and system performance<br>3.2 Clean worksite and make safe according to enterprise requirements and to customer satisfaction<br>3.3 Notify appropriate personnel of job completion for sign off and present test documentations |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.6, 2.1, 2.3, 2.5, 2.6 | • Interprets textual information from relevant sources to plan, identify all job requirements and adhere to procedures and standards |
| Writing | 1.2-1.5, 2.3, 2.6, 3.1, 3.3 | • Accurately completes relevant reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 1.2-1.5, 2.6, 3.3 | • Uses listening and questioning skills to confirm understanding for requirements, participates in a verbal exchange of ideas and solutions, and uses appropriate, detailed and clear language to address key personnel and customers |
| Numeracy | 1.5, 1.6, 2.2, 2.4, 2.5 | • Uses mathematical formulae to gather and record technical measurements |
| Navigate the world of | 1.1, 1.3, 1.4, 2.1, 2.2, 3.2 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context with specific reference to workplace safety<br>• Understands main tasks, responsibilities and boundaries of own work |
| Interact with others | 3.3 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1, 1.3, 1.5, 1.6, 2.2, 2.6 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Considers purpose, needs and limitations when selecting devices and applications for different tasks |


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# Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) should be included.

| | |
|---|---|
| Test equipment that must be used includes: | • optical time domain reflectometer (OTDR)<br>• optical spectrum analyser (OSA)<br>• optical return loss (ORL) |
| Measurements that must be performed include: | • optical power level<br>• insertion loss of optical network<br>• end-to-end fibre loss (bi-directional) |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN402 Use advanced optical test equipment | ICTOPN4116A Use advanced optical test equipment | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN402 Use advanced optical test equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- obtain operation documentation for advanced optical test instruments
- plan and prepare a schedule of tests to be performed
- conduct optical tests
- record measurements for a range of parameters
- test, calculate and document optical link budget
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe an optical system and its main components
- identify hazards and risks for health and safety associated with optical systems
- identify and describe common tests, measurements and testing plans used for optical systems
- identify common wavelengths involved with optical systems
- list and describe use of tools and test equipment for optical systems
- explain consequences of mating contaminated optical connectors
- perform calculations using decibels, dBm
- discuss downstream and upstream signals
- outline dense wavelength division multiplexing (DWDM) metro and long haul system architecture
- summarise measurement of DWDM signals


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- explain measurement of gain and gain flatness of optical amplifier
- discuss measurement of laser spectral stability, drift and unexpected variation in spectral transmission characteristics
- explain non-linear effects, four-wave mixing
- identify optical connector types
- outline optical signal to noise ratio (OSNR)
- summarise optical spectrum limits, wavelengths used in various applications and International Telecommunications Union (ITU) grid
- identify optical transmitters and receivers
- describe optical return loss (ORL)
- discuss OTDR dead zones, dynamic range and launch cable reflectance
- outline safe handling procedures with optical fibres
- describe transmission system line rates:
  - optical ethernet
  - optical transport network (OTN)
  - synchronous digital hierarchy (SDH)
- explain wavelength division multiplexing (WDM), coarse wavelength division multiplexing (CWDM) and DWDM principles and optical multiplexers
- identify and explain influence of legislation, regulations, standards and codes of practice relevant to advanced optical work.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- tools and equipment required for measurements
- manufacturer’s documentation for test instruments and equipment under test.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN403 Prepare activity plans and specifications for a fibre to the x installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare the activity plans and specifications required by field technical staff to deploy a fibre to the x (FTTx) installation for optical access networks.

It applies to individuals who work in a supervisory capacity within a team environment. They are technically skilled and integral to the delivery of a very high speed broadband through the access network for the National Broadband Network (NBN) initiative.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for FTTx planning tasks | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Scope work by obtaining project plan from appropriate personnel and arrange for site access to comply with security arrangements |


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| | |
|---|---|
| | 1.3 Notify appropriate personnel of identified safety hazards at the worksite<br>1.4 Obtain tools and safety equipment and material to perform tasks safely and efficiently<br>1.5 Select and use required protective equipment and make site safe and secure for installation work<br>1.6 Identify and select plant and machinery for installation work activities |
| 2. Plan FTTx activities and develop specifications | 2.1 Follow work health and safety (WHS) and environmental requirements for given work and identify and avoid other services<br>2.2 Inspect proposed cable route visually according to cable plan and identify barriers to the cable installation<br>2.3 Modify cable plan, if required, and notify appropriate personnel<br>2.4 Prepare installation activities for FTTx provisioning according to project plan<br>2.5 Prepare installation specifications according to safe work practices and manufacturer's instructions to include optical fibre cable size, distribution area (DA), distribution joint including lead-in multiport serving area (DLMSA), enclosures, location of optical network terminations (ONT), location and type of fibre distribution hub (FDH) and optical splitter provisioning<br>2.6 Verify cable length from customer access network fibre centre to end-user ONT is within 20 km operating limit<br>2.7 Consult with appropriate personnel to confirm project scope, installation requirements and installation specifications according to project plan |
| 3. Complete documentation and obtain sign-off | 3.1 Complete and present updated planning activities documentation to authorised personnel<br>3.2 Complete and provide updated specification documentation to vendors for supply of material and resources<br>3.3 Submit documentation to appropriate person for approval and sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 2.2, 2.5, 2.7 | • Interprets textual information from relevant sources to plan, identify all job requirements and adhere to procedures and standards |
| Writing | 1.2, 1.3, 2.3, 2.7, 3.1, 3.2 | • Accurately completes relevant reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 1.2, 1.3, 2.3, 2.6, 2.7, 3.1 | • Uses listening and questioning skills to confirm understanding of requirements, participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address key personnel and customers |
| Numeracy | 2.6 | • Uses simple mathematical equations to determine equipment and installation requirements |
| Navigate the world of work | 1.1, 1.3-1.5, 2.1, 2.5 | • Understands nature and purpose of own role and associated responsibilities and how it contributes to the work of others in the immediate work context<br>• Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context with specific reference to workplace safety |
| Interact with others | 3.1-3.3 | • Selects appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.2, 1.4-1.6, 2.2, 2.4, 2.6, 2.7 | • Takes responsibility for own workload, negotiating some key aspects with others<br>• Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Makes decisions in relatively complex situations, taking a range of constraints into account<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts<br>• Reflects on ways digital systems and tools are used, or could be used to achieve work goals and begins to recognise strategic as well as operational applications |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTOPN403 Prepare activity plans and specifications for a fibre to the x installation | ICTOPN4117A Prepare activity plans and specifications for a fibre to the x installation | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN403 Prepare activity plans and specifications for a fibre to the x installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine the scope of the installation
- visually inspect proposed cable route
- prepare installation activities for fibre to x (FTTx) provisioning
- prepare and document FTTx designs and specifications and submit for approvals
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline properties of passive optical devices, including splitters and couplers
- identify FTTx installation equipment, including tools and safety equipment
- explain FTTx specifications
- outline legislative privacy, safety and environmental requirements including:
  - WHS requirements relating to handling of optical fibre and using laser optical sources
  - other personal safety issues
  - plant and equipment safety to be used in installation plans
  - discussion of manufacturer’s requirements for safe operation of equipment
- summarise operation of optical transmitters and receivers
- identify organisational policy and procedures relevant to this work
- discuss propagation of light in optical communication systems
- summarise the role of optical transmitters and receivers in optical communication systems
- explain the concept of wavelength division multiplexing (WDM)


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- discuss the importance of a knowledge of site engineering
- describe typical issues and challenges in preparing an activity plan for a site
- demonstrate a knowledge of the workplace and industry environment and their relationship to this work.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications \-– Optical Networks field of work and include access to:

- vendor product information and installation guides
- relevant regulatory and equipment documentation impacting installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN501 Plan and configure dense wavelength division multiplexing systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare activity plans and specifications required to deploy a dense wavelength division multiplexing (DWDM) optical network suitable for a metropolitan area network (MAN) or long haul applications.

It applies to individuals who work as members of a team and use high-level communication and technical skills to provide services in Next Generation Networks (NGN) using emerging technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for DWDM planning activities | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Scope the work by obtaining project plan from appropriate personnel and arrange for site access to comply with security arrangements |


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| | |
|---|---|
| | 1.3 Notify appropriate personnel of identified safety hazards at the worksite |
| 2. Plan DWDM installation activities and develop specifications | 2.1 Follow work health and safety (WHS) and environmental requirements for given work and identify and avoid other services<br>2.2 Identify tools, safety equipment, plant and machinery for installation work activities<br>2.3 Conduct physical inspections of proposed DWDM sites and verify backbone dark fibre is accessible and available according to cabling plan<br>2.4 Verify proposed backbone and customer fibre cable routes to splicing cabinet and fibre patch panel, and identify barriers to cable installation<br>2.5 Verify proposed power cabling route from distribution board and circuit breakers, and identify barriers to cable installation<br>2.6 Modify cable plan if required and notify appropriate personnel<br>2.7 Prepare fibre installation specifications and power cable and grounding specifications according to cabling plan and safe work practices and manufacturer's instructions<br>2.8 Verify proposed location of associated hardware racks, cabinets and ironwork, and confirm access to enterprise local area network (LAN) |
| 3. Prepare DWDM shelf configuration and specifications according to customer requirements | 3.1 Prepare a configuration document including configuration plans and specifications for the installation team<br>3.2 Specify location of DWDM shelves or racks and the shelf interconnection fibre cabling layout according to cabling plan<br>3.3 Specify individual DWDM units and circuit card types required to suit customer requirements |
| 4. Plan preliminary optical tests | 4.1 Verify backbone fibres at patch panel and conduct bidirectional optical time domain reflectometer (OTDR) test and record measurement results and OTDR images<br>4.2 Conduct bidirectional optical loss test set (OLTS) measurement of insertion loss on backbone fibres from patch panel to patch panel at adjacent sites and record measurement results |
| 5. Complete documentation and obtain sign-off | 5.1 Provide results of optical measurements to design team<br>5.2 Complete and provide updated specification documentation to installation team<br>5.3 Submit documentation to appropriate person for approval and sign-off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.3, 2.7, 3.2 | • Interprets textual information from relevant sources to identify and plan for all job requirements and to adhere to procedures and standards |
| Writing | 1.2, 1.3, 2.6, 3.1, 4.1, 4.2, 5.1, 5.2 | • Accurately completes relevant reports and documentation using clear and technically specific language, numerical data and diagrammatic information |
| Oral Communication | 1.2, 1.3, 2.6, 5.1 | • Uses listening and questioning skills to confirm understanding for requirements, participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address key personnel, contractors, vendors and clients |
| Numeracy | 2.7, 4.1, 4.2, 5.1 | • Uses mathematical equations to evaluate technical data to calculate required settings and make adjustments |
| Navigate the world of work | 1.1, 2.1, 2.7 | • Understands how own role meshes with others and contributes to broader work goals<br>• Monitors adherence to legal and regulatory rights and responsibilities with specific reference to safe industry practices |
| Interact with others | 5.3 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience and monitoring impact |
| Get the work done | 1.1, 1.2, 2.2-2.5, 2.8, 3.2, 3.3, 4.1, 4.2 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTOPN501 Plan and configure dense wavelength division multiplexing systems | ICTOPN5118A Plan and configure dense wavelength division multiplexing systems | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN501 Plan and configure dense wavelength division multiplexing systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan and develop all required dense wavelength division multiplexing (DWDM) installation activities according to all work health and safety (WHS) and job specifications
- prepare all DWDM shelf configurations and specifications
- plan preliminary optical tests
- complete project and acceptance documentations and submit for approval.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain configuration of DWDM shelf
- summarise principles of DWDM operations
- manage risk of electrostatic discharge
- summarise features and operating requirements of the following test equipment:
  - hand-held optical power meter
  - optical spectrum analyser
  - optical time domain reflectometer (OTDR)
  - transmission test set
- describe functions of an optical add drop multiplexer
- explain the role of the following in planning and configuration of DWDM systems internet protocol (IP) addressing:
  - subnet mask
  - dynamic host configuration protocol (DHCP)


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  - default gateway
- explain International Telecommunications Union (ITU) wavelength grid for DWDM
- identify optical fibre connector types and discuss their characteristics
- identify optical fibre types and discuss their characteristics
- explain path protection and protection switching
- summarise physical optical loopbacks and software loopbacks used to assist with testing DWDM systems
- identify protocols used on optical DWDM systems
- discuss the use of ring topologies and linear network topologies in DWDM system cable routes
- explain specific work health and safety (WHS) requirements that impact safe inspection of optical connectors and safe measurement of optical power from laser transmission systems.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- test equipment currently used in industry
- manufacturer’s technical documentation
- relevant regulations and specifications.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN502 Perform acceptance and commissioning tests on optical network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to conduct acceptance tests and commissioning tests on optical networks, including the optical portion of broadband hybrid fibre coaxial (HFC) networks, fibre to the x (FTTx) passive optical networks (PONs) and metropolitan and long haul dense wavelength division multiplexing (DWDM) networks.

It applies to individuals who work as members of a team and use high-level communication and technical skills to provide services in Next Generation Networks (NGN) using emerging technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to conduct | 1.1 Obtain installation and commissioning documents and planning specifications from appropriate personnel to ensure installed optical |


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| | |
|---|---|
| acceptance tests | network is as planned and specified<br>1.2 Conduct visual inspection of new installation and verify system compliance against relevant legislation, codes, regulations and standards, and accepted industry practice<br>1.3 Select and obtain required test equipment for suitability of acceptance testing<br>1.4 Prepare acceptance schedule and test criteria in consultation with appropriate personnel |
| 2. Conduct acceptance testing | 2.1 Conduct and evaluate performance tests to ensure measurements meet with predetermined specifications and approved operating margins<br>2.2 Verify performance levels to be within tolerance specifications set in manufacturer's instructions<br>2.3 Test protection mechanisms to ensure performance criteria meets specified standard<br>2.4 Test alarms for satisfactory operation and refer identified problems to appropriate personnel for remedial action<br>2.5 Record all acceptance test procedures and results |
| 3. Complete administrative tasks | 3.1 Complete acceptance documentation including recommendations<br>3.2 Notify appropriate personnel and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 2.2, 2.3 | • Interprets textual information from relevant sources, including equipment readings to identify and plan for all job requirements and adhere to procedures and standards |
| Writing | 1.1, 1.4, 2.5, 3.1, 3.2 | • Accurately completes relevant reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 1.1, 1.4, 3.2 | • Uses listening and questioning skills to confirm understanding for requirements, participates in a verbal exchange of ideas and solutions, and uses appropriate, detailed and clear language to address |


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| | | |
|---|---|---|
| | | key personnel |
| Numeracy | 2.1 | • Uses mathematical equations to evaluate technical data to determine measurements and any required calibration changes |
| Navigate the world of work | 1.1, 1.2 | • Understands how own role meshes with others and contributes to broader work goals<br>• Monitors adherence to legal and regulatory rights and responsibilities |
| Interact with others | 3.2 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience and monitoring impact |
| Get the work done | 1.1, 1.3, 1.4, 2.3, 2.4 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Recognises and addresses some unfamiliar problems of increasing complexity within own scope, recognising when to seek the expertise of others |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN502 Perform acceptance and commissioning tests on optical network | ICTOPN5119A Perform acceptance and commissioning tests on optical network | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN502 Perform acceptance and commissioning tests on optical network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- verify ‘as built’ installation against installation plans
- undertake acceptance and commissioning tests and analysis against specified installation and commissioning documents
- complete and submit all acceptance documentation incorporating test procedures, results and recommendations
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify cabling, terminations and supporting structures that may be encountered in the system under inspection
- outline common performance levels and standards
- describe electrical and optical properties to be measured
- explain health and safety issues appropriate to the work environment under inspection
- summarise typical network topologies, switching, routing and transmission techniques
- discuss transmission type and signals that may be encountered
- identify various test equipment types suitable for tests to be made.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- testing equipment currently used in industry
- relevant regulatory and equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN503 Plan for an optical system upgrade and cut over

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan the activities of a major upgrade of optical systems from specifications provided by the planning and design section or its equivalent. Major upgrades in enterprise networks or a telecommunications service provider's network involve cut over activities to integrate additional work into the existing network.

It applies to individuals who work as members of a team and use high-level communication and technical skills to provide services in Next Generation Networks (NGN) using emerging technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather information to prepare upgrade activity plan | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Obtain design specifications from the planning and design section to |


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|---|---|
| | determine scope and nature of the upgrade<br>1.3 Analyse the design specification and design plan, and determine accuracy of the design plan to site installation and requirements with customer<br>1.4 Determine network equipment types and obtain installation details from manufacturer<br>1.5 Prepare an equipment and component list and source vendors for procurement |
| 2. Prepare upgrade activity plans | 2.1 Prepare a detailed installation plan of the upgrade for the installer<br>2.2 Prepare a detailed installation procedure to carry out the upgrade to minimise impact to customer<br>2.3 Prepare pre-installation optical tests on existing equipment to determine benchmarks and performance levels prior to the upgrade<br>2.4 Prepare post-installation optical tests on upgrade to ensure upgraded system is achieving desired results<br>2.5 Prepare monitoring schedule to progressively assess upgrade progress<br>2.6 Prepare contingency plan for backing out if upgrade is not progressing according to schedule and disruptions to customer are excessive<br>2.7 Prepare cut over procedures |
| 3. Complete documentation | 3.1 Update documentation<br>3.2 Submit planning activity document for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.3 | • Interprets textual information from relevant sources to identify and plan for all job requirements and adhere to procedures and standards |
| Writing | 1.5, 2.1, 2.2, 2.5-2.7, 3.1-3.2, | • Accurately completes relevant reports and documentation using clear and technically specific language, numerical data and |


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| | | |
|---|---|---|
| | | diagrammatic information |
| Oral Communication | 1.2 | • Uses listening and questioning skills to confirm understanding of requirements, participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address key personnel |
| Numeracy | 2.3, 2.4, 2.6 | • Uses mathematical equations to evaluate technical data<br>• Uses basic arithmetic to determine work schedules |
| Navigate the world of work | 1.1 | • Understands how own role meshes with others and contributes to broader work goals<br>• Monitors adherence to legal and regulatory rights and responsibilities with specific reference to safe industry practices |
| Interact with others | 3.1, 3.2 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience and monitoring impact |
| Get the work done | 1.1-1.5, 2.1-2.7 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and understand uses and potential of new technology<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues and using lateral thinking processes to generate possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTOPN503 Plan for an optical system upgrade and cut over | ICTOPN5120A Plan for an optical system upgrade and cut over | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN503 Plan for an optical system upgrade and cut over

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- prepare upgrade plan incorporating the following:
  - a detailed installation plan and installation procedures
  - pre-installation and post-installation test methods and results
  - a monitoring schedule to assess progress of the upgrade
  - a contingency plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain alarms and backup systems that apply to optical networks
- describe escalation and outage procedures
- explain network management systems
- outline fundamentals of telecommunications networks and equipment
- summarise telecommunications monitoring tools
- outline telecommunications test equipment and test setups
- evaluate telecommunications wiring practices
- explain upgrade and post-upgrade routines.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- a site where upgrade and cut over may be planned
- equipment, software, test and monitoring equipment currently used in industry
- relevant regulatory, equipment, enterprise and vendor documentation that impacts work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN504 Test and commission a dense wavelength division multiplexing transmission system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to test and commission optical transmission systems using dense wavelength division multiplexing (DWDM) technology.

It applies to individuals who work with telecommunications carriers, service providers, public utilities and broadcasting companies. They combine technical optical communications skills with broader organisational and administrative skills in a range of commercial contexts and environments.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to commission DWDM transmission | 1.1 Implement hazard risk control measures<br>1.2 Review system specifications and technical data by identifying system operating parameters |


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|---|---|
| system | 1.3 Obtain and check tools and test equipment needed for the work<br>1.4 Verify all necessary equipment is installed, and circuit cards and filler cards are correctly located and seated<br>1.5 Check interconnecting fibres to optical multiplexers and shelves are intact and correctly routed<br>1.6 Establish communication between computer and DWDM shelf<br>1.7 Upload latest software release to each DWDM shelf in the network |
| 2. Commission DWDM transmission system | 2.1 Connect an optical test set and a physical optical loopback to the system, and select protocol compatible with DWDM hardware<br>2.2 Check connection status and that test set data is passing correctly<br>2.3 Monitor quality of received signal by setting performance monitoring (PM) features and retrieve PM counts<br>2.4 Verify no errors are counted by the test set during a long term stability test while customer input signal is set to the worst case (minimum) power level<br>2.5 Verify no alarms are generated during long term stability test period<br>2.6 Dispose of antistatic packaging to minimise environmental impact |
| 3. Complete test and commissioning documentation | 3.1 Finalise documentation on commissioning test results<br>3.2 Present results to appropriate person according to established procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 3.2 | • Interprets textual information from relevant sources to identify and plan for all job requirements and adhere to procedures and standards |
| Writing | 3.1, 3.2 | • Accurately completes relevant reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 3.2, 3.2 | • Uses listening and questioning skills to confirm understanding for requirements, participates in a verbal exchange of ideas and solutions, and uses |


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| | | |
|---|---|---|
| | | appropriate, detailed and clear language to address key personnel and clients |
| Numeracy | 1.2, 2.3 | • Uses mathematical equations to evaluate technical data and interpret results |
| Navigate the world of work | 2.6, 3.2 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies organisational implications of new legislation or regulation |
| Get the work done | 1.1, 1.3-1.7, 2.1-2.6 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules and reviews and changes them to meet new demands and priorities |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN504 Test and commission a dense wavelength division multiplexing transmission system | ICTOPN5121A Test and commission a dense wavelength division multiplexing transmission system | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN504 Test and commission a dense wavelength division multiplexing transmission system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan and coordinate commissioning
- test and commission dense wavelength division multiplexing (DWDM) transmission system
- complete commissioning documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain possible causes of alarms in long term stability test
- summarise principles of operation of DWDM
- explain standard electrostatic discharge precautions
- outline features and operating requirements of test equipment including:
  - a hand-held optical power meter
  - a transmission test set
  - an optical spectrum analyser
- describe functions of an optical add drop multiplexer
- explain how to set up the following:
  - internet protocol (IP) addressing
  - subnet mask
  - dynamic host configuration protocol (DHCP)
  - default gateway


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- summarise the International Telecommunications Union (ITU) wavelength grid for DWDM
- identify optical fibre connector types and characteristics
- identify optical fibre types and characteristics
- explain path protection and protection switching
- summarise physical optical loopbacks and software loopbacks
- describe protocols used on optical DWDM systems
- summarise ring topologies and linear network topologies
- outline specific health and safety requirements that impact the safe inspection of optical connectors and the safe measurement of optical power from laser transmission systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- test equipment currently used in industry
- manufacturer's technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN505 Test the performance of specialised optical devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to use specialised equipment for integration into existing optical networks or part of an upgrade for higher bandwidths required by services and applications of Next Generation Networks (NGN).

It applies to individuals who design and plan networks using emerging technologies and who work with telecommunications carriers, service providers, public utilities and broadcasting companies. They combine technical optical communications skills with broader organisational and administrative skills in a range of commercial contexts and environments.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to test specialised optical devices | 1.1 Obtain relevant legislation, codes, regulations and standards and follow work health and safety (WHS) and environmental requirements for the given work<br>1.2 Work safely according to relevant safety legislation and company work |


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| | |
|---|---|
| | practices, identifying hazards and using personal protective equipment<br>1.3 Determine type of optical device using the design plan and obtain manufacturer's specifications for testing<br>1.4 Determine test procedures and test equipment required to evaluate optical device suitability |
| 2. Test specialised optical device | 2.1 Set up test layout according to safe industry practice and connect specialised optical device into the test set-up<br>2.2 Undertake a test regime to determine performance characteristics of specialised optical device<br>2.3 Analyse test results to determine suitability and compatibility of optical device for integration into the network |
| 3. Document performance of specialised optical device | 3.1 Prepare evaluation report with recommendations on suitability of the specialised optical device<br>3.2 Present test results and evaluation report to appropriate person with copies filed for later reference according to organisation's policies |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.3, 3.2 | • Interprets textual information from relevant sources to identify and plan for all job requirements and adhere to procedures and standards |
| Writing | 3.1, 3.2 | • Accurately completes standard reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 3.2 | • Uses listening and questioning skills to confirm understanding for technical and operational requirements, participates in a verbal exchange of ideas and solutions, and uses appropriate, detailed and clear language to address key internal and external personnel and clients |
| Numeracy | 2.2, 2.3 | • Uses mathematical formulae to evaluate technical data and interpret results |
| Navigate the | 1.1, 1.2, 2.1, 3.2 | • Works independently with a strong sense of responsibility and ownership of goals, |


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| | | |
|---|---|---|
| world of world | | plans, decisions and outcomes<br>• Monitors adherence to legal and regulatory rights and responsibilities with specific reference to safe industry practices |
| Interact with others | 3.2 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience and monitoring impact |
| Get the work done | 1.1, 1.3, 1.4, 2.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others taking into account capabilities, efficiencies and effectiveness<br>• Takes responsibility for high impact decisions in complex situations involving many variables and constraints<br>• Actively identifies systems, devices and applications with potential to meet current and/or future needs<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues, using lateral thinking processes to generate possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN505 Test the performance of specialised optical devices | ICTOPN5122A Test the performance of specialised optical devices | Updated to meet standards for Training Packages | Equivalent Unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN505 Test the performance of specialised optical devices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan and coordinate test activities and equipment
- test specialised optical devices and determine suitability for integration into a network
- analyse test results
- report and make recommendations on suitability for integration
- comply with all work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain what an amplified spontaneous emission (ASE) source test shows
- summarise attenuation characteristics of optical fibres
- outline the principles of operation for dense wavelength division multiplexing (DWDM)
- identify features and operating requirements of test equipment including:
  - a hand-held optical power meter
  - an optical spectrum analyser
  - a transmission test set
- outline dispersion characteristics of various fibres
- describe dispersion compensation devices
- explain standard electrostatic discharge precautions
- outline functions of an optical add-drop multiplexer (OADM) and reconfigurable optical add-drop multiplexer (ROADM)
- explain gain equalisation


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- summarise the International Telecommunications Union (ITU) wavelength grid for DWDM
- describe the measurement of dispersion
- explain optical amplifier operation
- name optical fibre connector types and describe their characteristics
- list optical fibre types and describe their characteristics
- explain ‘optical return loss’ (ORL)
- clarify path protection and protection switching
- explain polarisation dependent loss (PDL)
- identify protocols used on optical DWDM systems
- explain reflectance in optical systems
- summarise ring topologies and linear network topologies
- explain specific work health and safety (WHS) requirements that impact the safe inspection of optical connectors and the safe measurement of optical power from laser transmission systems
- discuss tuneable laser sources and their characteristics.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- test equipment currently used in industry
- manufacturer’s technical documentation, legislation, codes and standards.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN506 Analyse and integrate specialised optical devices in the network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to analyse and integrate specialised optical devices into existing optical networks to support higher bandwidths associated with Next Generation Networks (NGN).

It applies to individuals who work for telecommunications carriers, service providers or other private and public organisations, who have experience in optical transmission. They combine technical expertise with a range of analytical, research and planning skills to develop integration solutions for particular business needs.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse specialised optical device and prepare for integration in the | 1.1 Obtain relevant legislation, codes, regulations and standards and follow work health and safety (WHS) and environmental requirements for the project work<br>1.2 Work safely according to relevant safety legislation and company |


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| | |
|---|---|
| network | work practices, identifying hazards and using personal protective equipment<br>1.3 Obtain plans and drawings of existing optical network from appropriate person and review potential locations for suitability of integrating additional hardware<br>1.4 Analyse and evaluate a range of integration options using device specifications which satisfy the customer's network requirements<br>1.5 Prepare and submit the business case for adopting recommended integration solution<br>1.6 Prepare design plan with interconnection details to existing system and installation options and seek approval to proceed from customer<br>1.7 Undertake an impact risk assessment of the hardware integration with the network operations centre (NOC) and prepare for contingencies using contingency plan |
| 2. Integrate specialised optical device in the network | 2.1 Install and integrate specialised optical devices into existing network according to design plan<br>2.2 Test the network and evaluate results to verify optical network performance with integrated specialised optical devices in operation |
| 3. Document integration of the specialised optical device in dense wavelength division multiplexing (DWDM) network | 3.1 Produce an updated design plan and submit to customer with copies filed for later reference according to organisation's policies<br>3.2 Prepare an evaluation report on network performance with specialised optical devices with recommendations for future enhancements<br>3.3 Notify NOC of job completion and obtain sign-off from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.7, 2.1, 3.1 | • Interprets textual information from relevant sources to identify and plan for all job requirements and adhere to procedures and standards |


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| | | |
|---|---|---|
| Writing | 1.5, 1.6, 3.1, 3.2, 3.3 | • Accurately completes standard reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 1.5, 1.6, 3.3 | • Uses listening and questioning skills to confirm understanding for technical requirements<br>• Participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address key personnel and clients |
| Numeracy | 2.2 | • Uses mathematical formulae to evaluate technical data and interpret results |
| Navigate the world of work | 1.1, 1.2, 3.1 | • Works independently within workplace parameters with a strong sense of responsibility and ownership of goals, plans, decisions and outcomes<br>• Monitors adherence to legal and regulatory rights and responsibilities with specific reference to safe industry practices |
| Interact with others | 3.3 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience and monitoring impact |
| Get the work done | 1.1, 1.3-1.7, 2.1, 2.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others taking into account capabilities, efficiencies and effectiveness<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Actively identifies systems, devices and applications with potential to meet current and/or future needs<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues and using lateral thinking processes to generate possible solutions |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN506 Analyse and integrate specialised optical devices in the network | ICTOPN5123A Analyse and integrate specialised optical devices in the network | Updated to meet standards for Training Packages | Equivalent Unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN506 Analyse and integrate specialised optical devices in the network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- analyse a specialised optical device and prepare a design to integrate it with a network
- integrate and test the device
- document integration to the network and recommend enhancements
- submit relevant documentation to appropriate personnel
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain attenuation characteristics of optical fibres
- summarise principles of operation of dense wavelength division multiplexing (DWDM)
- describe features and operating requirements of test equipment, including:
  - a hand-held optical power meter
  - an optical spectrum analyser
  - a transmission test set
- discuss dispersion characteristics of optical fibres
- explain the role of dispersion compensation devices
- explain standard electrostatic discharge precautions
- explain functions of an optical add-drop multiplexer (OADM) and reconfigurable optical add-drop multiplexer (ROADM)
- explain gain equalisation


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- summarise the International Telecommunications Union (ITU) wavelength grid for DWDM
- explain the measurement of dispersion in optical systems
- summarise optical amplifier operation
- identify optical fibre connector types and characteristics
- identify optical fibre types and characteristics
- outline optical return loss (ORL)
- explain path protection and protection switching
- clarify protocols used on optical DWDM systems
- explain the role of reflectance in optical systems
- explain ring topologies and linear network topologies
- explain specific WHS requirements that impact the safe inspection of optical connectors and the safe measurement of optical power from laser transmission systems
- describe tunable laser sources and their characteristics.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- test equipment currently used in industry
- manufacturer's technical documentation, legislation, codes and standards.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN601 Manage optical ethernet transmission

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to manage an ethernet optical transmission system. It includes analysis of fault conditions that may occur.

It applies to individuals who work as members of a team with carrier telecommunications networks using optical technologies. Individuals in these roles are excellent communicators and skilled technicians.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to test optical ethernet link | 1.1 Make worksite safe by identifying existing and potential site hazards<br>1.2 Determine the technical environment and network components<br>1.3 Report on infrastructure to ensure link is designed to meet performance requirements |


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| | |
|---|---|
| 2. Specify architecture requirements | 2.1 Follow site specific safety requirements and enterprise work health and safety (WHS) procedures<br>2.2 Determine architecture components<br>2.3 Determine functions and framework for the system to operate across network boundaries, taking into account performance criteria |
| 3. Manage optical ethernet link | 3.1 Conduct work in context of appropriate tests<br>3.2 Analyse test results<br>3.3 Provide a report on test results and compare with expected outcomes<br>3.4 Document test results and refer to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 2.1, 2.3, 3.2 | • Interprets textual information from relevant sources to identify and plan for all job requirements and adhere to procedures and standards |
| Writing | 1.3, 3.3, 3.4 | • Accurately completes standard reports and documentation using clear and technically specific language and numerical data |
| Oral Communication | 1.3 | • Uses listening and questioning skills to confirm understanding of technical and operational requirements<br>• Participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address internal and external personnel and clients |
| Numeracy | 3.2 | • Uses mathematical formulae to evaluate technical data and interpret results |
| Navigate the world of work | 1.1, 2.1, 3.1 | • Works independently within parameters with a strong sense of responsibility and ownership of goals, plans, decisions and outcomes<br>• Monitors adherence to legal and regulatory |


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| | | |
|---|---|---|
| | | rights and responsibilities with specific reference to safe industry practices |
| Interact with others | 3.4 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience and monitoring impact |
| Get the work done | 1.2, 2.2, 2.3 | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Actively identifies systems, devices and applications with potential to meet current and/or future needs |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN601 Manage optical ethernet transmission | ICTOPN6124A Manage optical ethernet transmission | Updated to meet standards for Training Packages | Equivalent Unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN601 Manage optical ethernet transmission

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify test performance parameters
- plan the test from performance requirements
- select and perform a testing regime on ethernet optical transmissions
- analyse and document test results
- comply with all work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe intricacies of optical ethernet systems including:
  - application in optical systems
  - system architecture
  - function and framework within a telecommunications environment
  - organisational policies and procedures
  - appropriate testing techniques and analysis
- explain specific work health and safety (WHS) requirements relating to:
  - handling of optical fibre
  - personal safety issues
  - use of laser light sources.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- test equipment currently used in industry
- manufacturer's technical documentation, legislation, codes and standards.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN602 Manage dense wavelength division multiplexing transmission system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to manage a dense wavelength division multiplexing (DWDM) transmission system using graphical user interface (GUI) management software.

It applies to individuals who use high-level technical skills and network management software to manage network operations. It is often carried out at a central Network Operations Centre (NOC).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to manage transmission system | 1.1 Determine networking issues and requirements from appropriate person<br>1.2 Install network management software according to vendor instructions, including access, security and administration |


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| | |
|---|---|
| | 1.3 Create a customised representation of the enterprise's network topology<br>1.4 Set and configure thresholds for performance monitoring<br>1.5 Prepare a plan to integrate the DWDM management system into a broader network management system where applicable |
| 2. Manage transmission system | 2.1 Manage network using appropriate communications links<br>2.2 Monitor network for faults and performance and produce a fault and performance report |
| 3. Use network management to report on the overall state of transmission system | 3.1 Analyse performance monitoring data and alarm data<br>3.2 Prepare report and make recommendations based on analysis<br>3.3 Report on network degradation over a period of time |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 3.1 | • Interprets textual information from relevant sources to identify and plan for all job requirements and adhere to procedures and standards |
| Writing | 2.2, 3.2, 3.3 | • Accurately completes standard reports and documentation using clear and technically specific language, numerical data and diagrammatic information |
| Oral Communication | 1.1, 1.2, 3.3 | • Uses listening and questioning skills to confirm technical and operational requirements and participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address key personnel and clients |
| Numeracy | 1.4, 3.1 | • Uses mathematical equations to evaluate technical data and determine acceptable monitoring levels |
| Get the work done | 1.1-1.5, 2.1, 2.2 | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses nuanced understanding of context to recognise |


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| | | |
|---|---|---|
| | | anomalies and subtle deviations to normal expectations, focusing attention on critical issues and variables<br>• Uses a broad range of features within applications to improve personal productivity including optimising software functions for specific purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN602 Manage dense wavelength division multiplexing transmission system | ICTOPN6125A Manage dense wavelength division multiplexing transmission system | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN602 Manage dense wavelength division multiplexing transmission system

## Modification History

| **Release** | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine network parameters and set up performance monitoring
- manage network using appropriate software and tools
- monitor network for faults and performance
- produce fault and performance report
- analyse performance monitoring and alarm data
- prepare report with recommendations based on analysis.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss workplace and industry environment relevant to dense wavelength division multiplexing (DWDM)
- outline optical communications principles
- explain DWDM technology, its operation and testing principles
- summarise simple network management protocol (SNMP)
- explain organisational policies and procedures relevant to the DWDM
- determine appropriate report formats and communications tools required to make recommendations on performance and network degradation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- DWDM system and test equipment currently used in industry
- relevant equipment manuals, software manuals and other procedural documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN603 Design a dense wavelength division multiplexing system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design a high-capacity dense wavelength division multiplexing (DWDM) optical network suitable for a metropolitan area network (MAN) or long haul applications.

It applies to individuals who are skilled technicians and excellent communicators who use optical technologies for the deployment of high capacity networks. The work involves link budget design and providing specification details for configuration and commissioning teams.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to produce a DWDM system design | 1.1 Obtain the planning document from appropriate person and determine site details<br>1.2 Obtain the service type and number of channels required between customer traffic sources and destinations and the type of protection |


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| | |
|---|---|
| | required<br>1.3 Obtain specifications of optical fibre between sites<br>1.4 Determine fibre loss between sites |
| 2. Calculate link budget for each wavelength path | 2.1 Use vendor's engineering design rules, specifications and data to calculate link budget and link margin for each DWDM wavelength and path<br>2.2 Evaluate link budget and assess calculated margin and make recommendations for improvement if warranted<br>2.3 Analyse specifications of installed optical fibre and determine if dispersion will limit the maximum traffic data rate<br>2.4 Generate options for system design that are realistic for the enterprise and network<br>2.5 Evaluate and select preferred option based on enterprise business strategy outcomes, service policy and compliance with relevant legislation<br>2.6 Discuss and confirm selected option with customer |
| 3. Prepare detailed configuration documents for the DWDM system | 3.1 Outline detailed requirements of the DWDM system for configuration document<br>3.2 Prepare a configuration document according to customer's traffic needs<br>3.3 Prepare an internet protocol (IP) address allocation for all DWDM shelves and associated routers and gateways<br>3.4 Submit documentation to appropriate person for approval and sign off |
| 4. Investigate upgrade options using emerging technologies | 4.1 Investigate option of using a reconfigurable optical add-drop multiplexer (ROADM) and make recommendations outlining benefits<br>4.2 Investigate feasibility of a future upgrade up to 100 Gbps system using optical transport network (OTN) - DWDM technology |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 2.1, 2.3, 2.5 | • Interprets textual information from relevant sources to identify and plan for all job requirements and adhere to procedures and standards |
| Writing | 1.1, 2.2, 2.4, 3.1, 3.2, 3.4, 4.1 | • Accurately prepares project briefs, technical documentation and reports using clear and technically specific language, numerical data and diagrammatic information |
| Oral Communication | 1.1, 2.2, 2.6, 4.1 | • Uses listening and questioning skills to confirm technical and operational requirements and participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address installation personnel, vendors, customers and contractors |
| Numeracy | 1.4, 2.1, 2.2, 2.3 | • Uses mathematical equations to evaluate all relevant technical data |
| Navigate the world of work | 2.5 | • Monitors adherence to legal and regulatory rights and responsibilities |
| Interact with others | 3.4 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience and monitoring impact |
| Get the work done | 1.1-1.4, 2.2, 2.4, 2.5, 3.3, 4.1, 4.2 | • Understands key principles and concepts underpinning the design and operation of digital systems and tools and applies these when seeking to understand the potential of new technology<br>• Takes responsibility for defining key aspects of workload, balancing own needs and priorities with job requirements<br>• Takes responsibility for high-impact decision in complex situations involving many variables and constraints<br>• Recognises and addresses complex problems involving multiple variables |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTOPN603 Design a dense wavelength division multiplexing system | ICTOPN6128A Design a dense wavelength division multiplexing system | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN603 Design a dense wavelength division multiplexing system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine fibre loss between sites
- calculate link budget and link margin
- prepare dense wavelength division multiplexing (DWDM) shelf configuration and specifications
- produce configuration documentation
- investigate an emerging DWDM technology.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the configuration of DWDM shelf
- outline operation principles of DWDM
- clarify electrostatic discharge
- identify features and operating requirements of test equipment including:
  - an optical time domain reflectometer (OTDR)
  - a hand-held optical power meter
  - a transmission test set
  - an optical spectrum analyser
- describe functions of an optical add-drop multiplexer (OADM)
- summarise functions of reconfigurable optical add-drop multiplexer (ROADM)
- explain internet protocol (IP) addressing, subnet mask, dynamic host configuration protocol (DHCP) and default gateway


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- summarise International Telecommunications Union (ITU) wavelength grid for DWDM
- explain laser stability
- identify dispersion compensation devices
- describe the importance of a link budget and calculate a link margins
- identify optical fibre connector types and characteristics
- identify optical fibre types and characteristics
- discuss path protection and protection switching
- explain physical optical loopbacks and software loopbacks
- summarise traditional protocols and emerging Optical Transport Network (OTN) technologies used on optical DWDM systems
- describe ring topologies and linear network topologies
- explain specific work health and safety (WHS) requirements that impact the safe inspection of optical connectors and the safe measurement of optical power from laser transmission systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- manufacturer’s technical documentation
- relevant regulations
- system specifications.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTOPN604 Analyse optical transmission systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to verify the characteristics of Next Generation Networks (NGN) to ensure they will support the new modulation requirements of the equipment.

It applies to individuals who are experienced technicians from telecommunications carriers, service providers, or other private and public organisations, who have experience in the optical transmission area.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Optical Networks

## Elements and Performance Criteria

| Element | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to conduct characterisation tests on existing optical network | 1.1 Obtain relevant legislation, codes, regulations and standards and follow work health and safety (WHS) and environmental requirements for the given work<br>1.2 Identify hazards and work safely according to relevant safety legislation and company work practices using personal protective equipment |


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| | |
|---|---|
| | 1.3 Construct test procedures for each test to be conducted<br>1.4 Notify customer and arrange for site access |
| 2. Conduct link characterisation tests and analyse existing optical network | 2.1 Perform optical tests to characterise existing fibre link<br>2.2 Analyse results of optical tests, and determine extent and nature of future upgrades based on the tests |
| 3. Document analysis of optical network with recommendations | 3.1 Produce final drawings and plans of proposed upgrade requirements for optical transmission and submit to project manager according to enterprise policy<br>3.2 Prepare report on measured performance of the network and recommendations on future upgrades |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 3.1 | • Interprets textual information from relevant sources to identify and plan for all job requirements and adhere to procedures and standards |
| Writing | 1.2, 1.4, 3.1, 3.2 | • Accurately prepares standard documentation using clear and technically specific language, numerical data, drawings and plans |
| Oral Communication | 1.4 | • Uses listening and questioning skills to confirm technical and operational requirements and participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address team members, supervisors and customers |
| Numeracy | 2.2 | • Uses mathematical equations to evaluate all relevant technical data |
| Navigate the world of work | 1.1, 1.2, 3.1 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work, with specific reference to workplace safety<br>• Understands main tasks, responsibilities |


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| | | |
|---|---|---|
| | | and boundaries of own work |
| Get the work done | 1.3, 2.1, 2.2 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account<br>• Recognises and addresses complex problems involving multiple variables<br>• Actively identifies systems, devices and applications with potential to meet current and/or future needs |

# Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) should be included.

| | |
|---|---|
| Measurements that must be conducted include: | • optical time-domain reflectometer (OTDR) testing from both ends<br>• optical loss test set (OLTS)<br>• optical return loss (ORL)<br>• chromatic dispersion (CD)<br>• polarisation mode dispersion (PMD)<br>• non-linearity (four wave mixing)<br>• optical signal-to-noise ratio (OSNR) |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTOPN604 Analyse optical transmission systems | ICTOPN6129A Analyse optical transmission systems | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTOPN604 Analyse optical transmission systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- conduct optical transmission measurements
- analyse complex optical measurement results
- liaise with the customer as required.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list and describe legislative and regulatory frameworks that govern optical transmission systems
- list and describe work health and safety (WHS) and environmental issues associated with optical transmission systems
- describe attenuation characteristics of optical fibres
- summarise the chromatic dispersion (CD) test
- explain principles of operation of dense wavelength division multiplexing (DWDM)
- discuss dispersion and outline dispersion characteristics of various fibres and devices used for compensation
- discuss precautions required to minimise electrostatic discharge
- identify features and operating requirements of test equipment including:
  - a hand-held optical power meter
  - an optical spectrum analyser
  - a transmission test set


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- identify functions of an optical add-drop multiplexer (OADM) and reconfigurable optical add-drop multiplexer (ROADM)
- explain gain equalisation
- describe the insertion loss test
- summarise the International Telecommunications Union (ITU) wavelength grid for DWDM
- discuss measurement of dispersion
- summarise methods to reduce dispersion
- discuss optical amplifier operation
- identify optical fibre connector types and characteristics
- identify optical fibre types and characteristics
- summarise the optical return loss (ORL) test
- outline the optical signal-to-noise ratio (OSNR) test
- discuss the optical time domain reflectometer (OTDR) test
- clarify path protection and protection switching
- explain performance qualification of 40 Gbit/s and 100 Gbit/s transceivers
- summarise the polarisation mode dispersion (PMD) test
- outline protocols used on optical DWDM systems
- explain reflectance in fibre optic systems
- discuss ring topologies and linear network topologies
- explain specific work health and safety (WHS) requirements and environmental constraints that impact safe inspection of optical connectors and safe measurement of optical power from laser transmission systems.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Optical Networks field of work and include access to:

- test equipment currently used in industry
- test equipment and manufacturer’s technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG201 Prepare site for support installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare a site for support installation for aerial or underground cable, or for erection of radio towers or above ground or underground equipment enclosures.

It applies to individuals who can apply a broad range of competencies in a varied work context from installation to operation of telecommunications equipment and products.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation | 1.1 Confirm location of proposed installation is according to installation plan and relevant legislation, codes, regulations and standards<br>1.2 Recognise and report hazards<br>1.3 Obtain approvals and authorisations for work, and carry at all times during works |


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| | |
|---|---|
| | 1.4 Inform landowner or tenant of imminent works<br>1.5 Locate adjoining services according to enterprise guidelines and work health and safety (WHS) practices<br>1.6 Clear site of vegetation and debris according to work specifications and any relevant approvals |
| 2. Excavate site | 2.1 Place pegs for proposed installation according to enterprise guidelines and site plans<br>2.2 Excavate using appropriate equipment for size of excavation and location of works, according to enterprise guidelines<br>2.3 Conduct levelling of site within tolerance specified in installation plan<br>2.4 Employ WHS practices and personal protective equipment, where appropriate, in manner intended by manufacturer |
| 3. Complete administration | 3.1 Note approved alterations on original plan and design using appropriate symbols, and return plan to originator<br>3.2 Complete and sign reports according to enterprise policy where required<br>3.3 Inform landowner or tenant of construction completion and expected next steps according to enterprise guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.5, 2.3, 2.4 | • Recognises and interprets various texts in a variety of forms to determine key information and specific requirements and responsibilities |
| Writing | 1.2-1.4, 3.1-3.3 | • Develops material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.1-1.4, 3.3 | • Explains requirements using relevant language suitable for specific audiences |
| Numeracy | 2.3 | • Interprets numerical information and applies basic mathematical calculations |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 1.2, 1.5, 1.6, 2.1, 2.2, 2.4, 3.2, 3.3 | • Recognises and follows explicit and implicit protocols and meets expectations associated with own role<br>• Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context, with specific reference to workplace safety |
| Interact with others | 3.1 | • Uses appropriate communication modes for specific work task |
| Get the work done | 1.1, 1.3, 1.6, 2.3 | • Plans and implements routine tasks to achieve requirements<br>• Implements standard procedures to make routine decisions<br>• Understands the purpose and specific functions of common digital tools used in some work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG201 Prepare site for support installation | ICTPGM2130A Prepare site for support installation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG201 Prepare site for support installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare and clear site for installation
- measure and peg out excavation location and levels
- safely excavate site
- obtain sign off, complete reports and record variations to plans.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify construction methods and performance requirements
- outline the features and operating requirements of construction equipment
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify manufacturer requirements for safe operation of equipment
- identify specific work health and safety (WHS) requirements relating to the activity and site conditions
- describe the levelling and measuring procedures for marking out an excavation
- identify and describe the operation of tools and equipment suitable for site preparation and excavation
- explain typical issues and challenges that occur on site
- discuss the communications strategies required when dealing with landowners and tenants.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- sites on which installations can be performed
- equipment and personal protective equipment
- relevant regulatory, organisational and equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG202 Plan, organise and undertake work activities

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan, organise and undertake work activities in a telecommunications environment, including voice, video and data networks in domestic, commercial or industrial installations.

It applies to individuals who plan, organise and undertake work on client premises and who may be part of a project team responsible for cabling equipment deployment in network infrastructure, such as broadband provisioning, wireless mobile and data networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to undertake work activities | 1.1 Prepare work requirements from job request or work orders and confirm with appropriate parties, including client and other appropriate parties and/or by site inspection<br>1.2 Apply and monitor work health and safety (WHS) standards, statutory requirements, relevant legislation, codes, regulations and |


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| | |
|---|---|
| | standards, and enterprise procedures throughout work procedure<br>1.3 Procure resources required to satisfy job plan for compliance with job specifications<br>1.4 Coordinate requirements, including requests for equipment isolation, with others involved or affected by the work according to enterprise requirements |
| 2. Coordinate and undertake work | 2.1 Coordinate work activities with appropriate parties according to enterprise procedures, and job and environmental requirements<br>2.2 Undertake and monitor tasks to comply with plans, work requirements and enterprise procedures |
| 3. Complete work | 3.1 Finalise work and restore worksite according to enterprise procedures and job requirements<br>3.2 Notify appropriate parties of work completion according to enterprise procedures and job requirements<br>3.3 Complete job records, costing data and necessary reports according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 2.1, 2.2, 3.1 | • Recognises and interprets visual and written text in a variety of forms to determine key information and job requirements |
| Writing | 1.1, 1.3, 1.4, 2.1, 3.2, 3.3 | • Develops material for a specific audience using clear and detailed language to convey explicit information |
| Oral Communication | 1.1-1.4, 2.1, 3.2 | • Explains information using relevant language suitable for specific audiences |
| Numeracy | 3.3 | • Uses basic mathematical calculations to determine job requirements and costs |
| Navigate the world of work | 1.2, 1.4, 2.1, 2.2, 3.1-3.3 | • Recognises and follows explicit and implicit protocols and meets expectations associated with own role<br>• Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own |


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| | | |
|---|---|---|
| | | work context with specific reference to workplace safety |
| Get the work done | 1.1, 1.3, 1.4, 2.1 | • Plans a range of routine tasks, accepting goals and aiming to achieve them efficiently<br>• Implements standard procedures for routine decisions<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts<br>• Understands the purpose and specific functions of common digital tools used in some work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG202 Plan, organise and undertake work activities | ICTPMG2173A Plan, organise and undertake work activities | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG202 Plan, organise and undertake work activities

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and prepare for work activities
- coordinate and undertake work activities, applying all related work health and safety (WHS) requirements and work practices
- complete all documents and reports for work activities according to organisation procedures
- demonstrate alignment with job request and consideration of client needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify appropriate tools, plant, equipment and materials required to do the work
- describe enterprise permit procedures and recording procedures
- identify and describe WHS requirements for work activities
- identify relevant engineering and design practices and procedures
- identify relevant statutory requirements
- explain the team communication process and goals
- list personal time management techniques
- outline work planning and organisation theory.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- sites on which work may be conducted
- equipment currently used in industry
- relevant regulatory and organisational procedures and equipment documentation that impact on the work undertaken.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG401 Support small scale ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to support the management of low risk, straightforward information and communications technology (ICT) projects within an organisation.

It applies to individuals who may work under supervision but have responsibility to ensure workflow is planned and completed in line with requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Support project commencement | 1.1 Confirm business opportunity to ensure the project objectives are understood<br>1.2 Identify stakeholders and gather requirements<br>1.3 Prepare a project charter or project proposal and obtain agreement from project sponsor |
| 2. Support project plan development | 2.1 Break down the requirements to identify tasks and resources needed to complete the project plan |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Compile a schedule of project tasks, including realistic timeframes and costs if required<br>2.3 Allocate task responsibilities to project team members<br>2.4 Agree on a process with the sponsor to manage risks or unexpected events that may arise and affect project objectives |
| 3. Support project completion | 3.1 Work with project team to ensure project activities meet timeframe, scope, cost and quality expectations<br>3.2 Monitor and control project risks and issues according to the agreed process<br>3.3 Verify that project deliverables meet project expectations and sign off as complete<br>3.4 Train users, if applicable |
| 4. Support project closure | 4.1 Prepare ICT support or maintenance documents if applicable<br>4.2 Obtain final project sign-off from sponsor and key stakeholders<br>4.3 Document lessons learned and close the project |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 3.3 | • Interprets and analyses text to gather detailed information and confirm requirements |
| Writing | 1.3, 2.2, 4.1, 4.3 | • Produces texts of varying complexity using appropriate language and grammar in logical sequence to convey information effectively |
| Oral Communication | 1.1, 1.3, 2.3, 2.4, 3.1, 3.3, 3.4, 4.2 | • Listens and participates in oral exchanges to effectively identify and confirm requirements<br>• Delivers presentation using appropriate and effective language to convey information |
| Numeracy | 2.2 | • Formulates numerical assumptions and performs mathematical calculations appropriate to the task |


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| | | |
|---|---|---|
| Navigate the world of work | 4.2 | • Follows protocols and meets expectations associated with own role when obtaining final sign-off |
| Interact with others | 2.3, 3.1, 3.4 | • Collaborates with others to achieve joint outcomes, allocating tasks to team members and working with them to complete tasks according to plan |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.2, 3.3 | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Applies formal problem-solving processes when tackling unfamiliar problems, breaking complex issues into manageable parts and identifying and evaluating several options for action when managing risks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG401 Support small scale ICT projects | ICAPMG401A Support small scale IT projects | Updated to meet Standards for Training Packages.<br><br>Minor edit to competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG401 Support small scale ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a project plan appropriate to the project objectives and the project proposal
- support the initiation, control and completion of a simple small-scale information and communications technology (ICT) project
- identify and apply requirements and expectations of a project according to the project plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the different project-management and planning methods and tools
- explain the characteristics of technical teams
- describe the different methods of communication and communication styles, including interviewing techniques
- explain the organisational values, policies and processes that may be relevant to the project
- describe the risks associated with small scale projects including:
  - cost
  - scope
  - timelines.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work, and include access to office equipment, materials and industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG402 Schedule installation of customer premises equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge to effectively schedule the installation of customer premises equipment (CPE), including planning, provisioning and monitoring of customer premises installations.

It applies to individuals with a range of telecommunications skills, involves a degree of autonomy and may include limited supervision of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan installation project | 1.1 Obtain relevant legislation, codes, regulations and standards, and follow work health and safety (WHS) and environmental requirements for given work<br>1.2 Plan work schedules for relevant parties to provision services and |


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| | |
|---|---|
| | deliverables in correct sequence for satisfactory project completion within specified timeframe<br>1.3 Order materials in advance of needs to avoid work delays<br>1.4 Negotiate provision and connection of required network capacity and facilities with network provider<br>1.5 Determine customer equipment types and quantities, and organise timing of delivery according to work schedule timeframe<br>1.6 Determine essential criteria for selecting labour resources to satisfy regulatory, enterprise and customer requirements<br>1.7 Calculate installation workloads to complete task within specified timeframe |
| 2. Provision resources for installation project | 2.1 Arrange for connection of network services to customer equipment<br>2.2 Coordinate logistics associated with delivery of material to site according to installation timeframe<br>2.3 Allocate labour to installation as determined in planning stage<br>2.4 Ensure that all installation personnel are advised of installation and customer requirements |
| 3. Monitor and adjust resource allocations | 3.1 Adjust labour resources as necessary to meet budget and completion timeframe<br>3.2 Monitor work progress against project schedules and budgets |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| | | |
|---|---|---|
| Reading | 1.1, 1.5, 1.6 | • Analyses and interprets various textual material to determine key information, requirements and responsibilities<br>• Researches relevant codes and standards to ensure latest requirements, regulations and standards are adhered to |
| Writing | 1.2, 1.4, 1.5, 1.6, 2.1, 2.2, 2.4 | • Develops material for a specific audience using clear and detailed language to convey explicit information |
| Oral Communication | 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4 | • Explains information using relevant language suitable for specific audiences |
| Numeracy | 1.7, 2.2, 2.3, 3.2 | • Uses mathematical calculations to determine staffing and logistical requirements and to plan |


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| | | |
|---|---|---|
| | | for the future |
| Navigate the world of work | 1.1, 1.6 | • Recognises and follows explicit and implicit protocols and meets expectations associated with own role<br>• Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context with specific reference to workplace safety |
| Get the work done | 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 3.1, 3.2 | • Applies formal processes when planning more complex tasks, producing plans with logically sequenced steps, and reflecting some awareness of time and resources constraints<br>• Implements standard decisions for routine tasks<br>• Initiates standard procedures when responding to familiar problems within the immediate context<br>• Recognises general design and operating principles of digital tools and uses this information when planning the installation of new technologies |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG402 Schedule installation of customer premises equipment | ICTPMG4048A Schedule installation of customer premises equipment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG402 Schedule installation of customer premises equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- access relevant information and plan an installation project
- schedule work for the installation team according to the plan
- organise supply of materials in a timely manner
- arrange for connection of network services
- monitor and apply contingencies if required.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss the importance and requirements of Australian Communications and Media Authority (ACMA) licensing
- outline the use of computers and application of software programs used in the telecommunications industry
- outline industry cabling practices
- identify work health and safety (WHS) procedures
- outline the stages of project management including:
  - phases of project management
  - roles and responsibilities within project management
  - project reporting
- identify telecommunications components and assemblies
- identify telecommunications customer premises equipment (CPE).


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- a work site where scheduling may be conducted
- relevant hardware and software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG403 Manage the delivery of network infrastructure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to manage the delivery of network infrastructure, including scoping the project, developing a project brief, managing the project and directing the activities of installation staff, building workers, contractors, manufacturers and vendors.

It applies to individuals who work in appropriate project management roles associated with access and core networks, including switching and transmission via optical fibre, radio, microwave and satellite.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope network infrastructure requirements | 1.1 Determine requirements of project from client and approved network plan<br>1.2 Assess current access network conditions to determine existing |


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| | |
|---|---|
| | network capacity and capability<br>1.3 Analyse site survey data and geographical information where necessary to assess suitability of site to design requirements<br>1.4 Assess risk of barriers to plan realisation to ensure delivery of network infrastructure project is achievable<br>1.5 Analyse impact on planning of relevant legislation and associated operational codes<br>1.6 Produce scoping document with consideration to new technology or technology features required in project |
| 2. Develop project brief | 2.1 Develop planning options considering current and new technology, facilities, features, and present and future needs<br>2.2 Conduct cost-benefit studies to guide decision making processes according to sound business practice<br>2.3 Discuss project brief with client, as required, and obtain approval of planning options<br>2.4 Produce planning specifications relating to location, route, area, product and/or platform<br>2.5 Estimate timing, costing and operating budget according to enterprise policy<br>2.6 Prepare final project brief and present to operational staff for implementation |
| 3. Manage project | 3.1 Define roles and responsibilities of stakeholders within terms of project<br>3.2 Establish reporting and communications line to ensure project is effectively managed<br>3.3 Review and continually monitor progress of project against deliverables and timelines, and invoke contingencies if required<br>3.4 Complete project documents in line with enterprise standards and guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.3, 1.5, 1.6, 3.3, 3.4 | • Interprets and comprehends visual and written content in a variety of forms to determine key information, requirements and responsibilities<br>• Researches relevant codes and standards to ensure latest requirements, regulations and standards are adhered to |
| Writing | 1.6, 2.1, 2.3-2.6, 3.2, 3.4 | • Develops accurate technical documents for a specific audience using clear and specific instructions and data in a format and sequence that convey explicit information |
| Oral Communication | 2.3, 2.6, 3.1, 3.2 | • Elicits the views and opinions of others using listening and questioning skills<br>• Clearly articulates information using relevant language with a level of negotiation |
| Numeracy | 1.3, 2.2, 2.4, 2.5, 3.3 | • Uses mathematical equations to estimate and cost numerical information<br>• Uses financial analysis skills to identify potentially misleading information, review financial outcomes and develop material based on verified data |
| Navigate the world of work | 1.5, 2.5, 3.4 | • Monitors adherence to legal and regulatory rights and responsibilities, and organisational policies and procedures, and considers own role in terms of its contribution to the broader goals of the work environment |
| Interact with others | 2.6 | • Selects the appropriate form, channel and mode of communication for a specific purpose |
| Get the work done | 1.1-1.4, 1.6, 2.1, 2.4, 2.5, 3.1-3.3 | • Plans a range of routine tasks, accepting stated goals and aiming to achieve them efficiently<br>• Takes responsibility for the outcomes of routine decisions related directly to own role<br>• Recognises and anticipates an increasing range of familiar problems, their symptom and causes, actively looking for early warning signs and implementing contingency plans<br>• Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and begins to recognise strategic and operational applications |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPMG403 Manage the delivery of network infrastructure | ICTPMG4152A Manage the delivery of network infrastructure | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG403 Manage the delivery of network infrastructure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine scope of network infrastructure requirements
- accurately analyse and document considerations in project specifications and the impact of legislative and environmental conditions on the project plan
- prepare a project brief outlining specifications, timeframes, costing and operating budget
- manage the delivery of network infrastructure to completion.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline Australian Communications and Media Authority (ACMA) licensing requirements
- explain common client telecommunications applications and related equipment
- identify correct computer operation
- describe the workplace and industry environment
- outline industry cabling practices
- explain leasing versus purchase options
- identify legislative and environmental impacts, including options for green information and communications technology (ICT) installations
- outline network and transmission equipment, network topologies, interfaces and interconnect solutions
- describe work health and safety (WHS) procedures
- identify performance parameters and typical faults in equipment and related connection and transmission media, and various test equipment types
- explain the process of project management
- identify telecommunications components and assemblies


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- identify warranty information and contractor work guarantees.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- sites on which projects may be conducted
- relevant databases, legislative requirements and other project related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG501 Manage ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage the initiation, implementation and completion of reasonably complex information and communications technology (ICT) projects incorporating scope, risk control and financial factors.

It applies to individuals who utilise a range of specialised technical and managerial techniques to plan, carry out and evaluate their own work and/or the work of a team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage project definition activities | 1.1 Confirm organisational project governance policy and processes<br>1.2 Confirm business problem or opportunity and project objectives<br>1.3 Develop project charter, including preliminary statement of project scope and obtain sign-off<br>1.4 Conduct a feasibility study and prepare a business case as |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | necessary |
| 2. Undertake project planning | 2.1 Plan information gathering activities to determine project requirements, constraints and risks<br>2.2 Identify project partitioning on the basis of intended system development life cycle and risk<br>2.3 Prepare project work breakdown, schedule and budget<br>2.4 Compile project management plan documents as necessary to communicate the intended management strategy for the project and obtain sign-off |
| 3. Establish the IT project team | 3.1 Identify and select team members, and allocate roles and responsibilities, based on project solution requirements<br>3.2 Determine training and support needs of team members<br>3.3 Establish project team values and agreed behavioural standards with team members |
| 4. Manage project execution activities | 4.1 Monitor delivery and acceptance of assigned project team work activities and manage individuals<br>4.2 Monitor and control the quality of project deliverables<br>4.3 Monitor and control project scope changes, risks and issues<br>4.4 Manage system testing and hand over activities |
| 5. Coordinate project closure | 5.1 Prepare IT support plans and maintenance or support documents<br>5.2 Obtain final project sign-off<br>5.3 Conduct post project review and document lessons learned<br>5.4 Review and update disaster recovery plan<br>5.5 Close project |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.2 | • Interprets complex text in order to appropriately address the project requirements |
| Writing | 1.3, 1.4, 2.3, 2.4, 3.3, 5.1, 5.2, 5.4 | • Prepares complex documents using appropriate language and grammar, and presents ideas, options and recommendations in a logical sequence |
| Oral Communication | 1.1-1.3, 2.4, 3.2, 3.3, 4.1, 5.2, 5.3 | • Actively listens and contributes to discussions to confirm requirements or discuss solutions to identified problems<br>• Conducts presentation to senior management and other team members, and effectively communicates ideas in a logical sequence |
| Numeracy | 2.3 | • Uses a wide range of mathematical calculations to interpret numerical information and to prepare/reconcile financial data |
| Navigate the world of work | 2.4, 4.4, 5.2, 5.5 | • Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Interact with others | 3.1, 3.2, 3.3 | • Fosters a collaborative culture within own sphere of influence, facilitating a sense of commitment and cohesion, and highlighting and using the strengths of those involved when establishing the project team<br>• Actively builds formal and informal networks to include key people/communities with expert skills and knowledge |
| Get the work done | 1.1-1.4, 2.1-2.4, 4.1-4.4, 5.3, 5.4 | • Makes a range of decisions in relatively complex situations, taking a range of constraints into account when monitoring the project and system testing<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria when conducting post project reviews |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG501 Manage ICT projects | ICAPMG501A Manage IT projects | Updated to meet Standards for Training Packages. | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | Minor edit to competency title. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG501 Manage ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- scope the activities of a complex information and communications technology (ICT) project
- prepare a project plan
- determine the project team and duties
- execute a project
- close the project, ensuring it has met requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the characteristics of leaders and technical teams
- outline the consultation and communication techniques and strategies
- describe the process of establishing technical teams and determine stages of team development
- explain estimation and cost-analysis techniques
- describe the methods of communication and communication styles, including interviewing techniques
- identify the objectives and perform benefits analysis
- outline the organisational values, policies and processes that apply to the project
- conduct performance management and project team appraisal methods
- explain the processes for monitoring team and own performance
- outline the project cash flow and budgeting processes
- identify the range of project-management methods and tools
- conduct systems analysis and modelling techniques
- explain team roles and delegation within a multi-project methodology context


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- identify and analyse technology solution models and frameworks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work, and include access to office equipment, materials and industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG502 Develop customer premises equipment installation project plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan installation of customer premises equipment (CPE).

It applies to individuals who have a high level of specialist technical skills and knowledge in telecommunications and IT networks using internet protocol (IP) systems, and who may supervise others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assess project requirements | 1.1 Discuss and clarify project deliverables with customer using available documentation<br>1.2 Determine the type of CPE installation project proposed<br>1.3 Evaluate access, work health and safety (WHS) and environmental |


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|---|---|
| | issues and include in job specification<br>1.4 Quantify and source equipment required<br>1.5 Estimate costs using organisational costing guidelines |
| 2. Prepare detailed system design and configuration | 2.1 Capture data necessary to project design brief<br>2.2 Negotiate system specifications based on project requirements with customer and sales staff<br>2.3 Translate available data into detailed system design and configuration<br>2.4 Verify deliverables with customer |
| 3. Detail project and quality plans | 3.1 Develop project plan to meet customer's needs with detailed task list, resource needs and timeframes<br>3.2 Develop contingency plans to meet problems that may arise<br>3.3 Produce a quality plan, incorporating process flow charts<br>3.4 Verify plans with customer and appropriate personnel |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.3 | • Analyses and interprets a variety of textual information to determine key information, requirements and project deliverables |
| Writing | 1.1, 1.3, 2.2, 2.4, 3.1, 3.3, 3.4 | • Develops accurate technical documents and diagrams for a specific audience using clear and detailed language to convey explicit information |
| Oral Communication | 1.1, 2.2, 2.4, 3.4 | • Clearly articulates information using relevant language suitable for specific audiences and checks for understanding |
| Numeracy | 1.4, 1.5, 3.1, 3.3 | • Uses mathematical calculations to determine costs and timelines<br>• Produces flow charts and other diagrams that capture job specifications |
| Navigate the world of work | 1.3, 1.5 | • Monitors adherence to legal and regulatory rights and responsibilities and organisational policies and procedures, with specific reference to workplace |


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| | | |
|---|---|---|
| | | safety<br>• Considers own role in terms of its contribution to the broader goals of the work environment |
| Get the work done | 1.2-1.4, 2.1, 2.3, 3.2 | • Plans a range of routine tasks, accepting stated goals and aiming to achieve them efficiently<br>• Takes responsibility for the outcomes of routine decisions related directly to own role<br>• Recognises and anticipates an increasing range of familiar problems, their symptom and causes, actively looking for early warning signs and implementing contingency plans<br>• Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and begins to recognise strategic and operational applications |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG502 Develop customer premises equipment installation project plans | ICTPMG5027A Develop customer premises equipment installation project plans | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG502 Develop customer premises equipment installation project plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- assess the equipment and performance requirements for a project on customer premises
- prepare detailed system design and configuration to customer requirements
- develop project and quality plans for the installation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and discuss the advantages of cabling types, structures and connectors
- describe the common customer telecommunications applications and related equipment
- explain the key advantages of connections to carrier infrastructure or equipment
- identify and summarise the current legislation relating to installation of telecommunications equipment and connection to carrier services
- explain environmental impacts, including options for green information and communications technology (ICT) installations
- identify and determine cost-effective solutions in installations, including the advantages of leasing and purchasing
- describe the attributes of network and transmission equipment
- explain network topologies, interface and interconnect solutions
- explain work health and safety (WHS) requirements for installations in terms of:
  - electrical safety
  - materials handling
  - physical hazards


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  - confined spaces
  - heights
  - lifting
- calculate the power requirements for the installation plan
- describe typical performance parameters and typical faults that may be encountered in customer equipment and related connection and transmission media
- identify warranty information for equipment supplies and contractor work guarantees.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- a site on which customer premises equipment (CPE) installation can be planned
- relevant documentation, data, technical manuals and other site related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG503 Prepare a project brief

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare a brief for realising a telecommunications project, including costing, vendor and technology choices, scheduling and resourcing.

It applies to individuals who may work under limited supervision and have responsibility to provide guidance or to delegate aspects of tasks to others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan project brief | 1.1 Contact client to obtain project details and approved network plan<br>1.2 Assess current network conditions<br>1.3 Analyse site survey data and geographical information to initiate studies if required |


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| | |
|---|---|
| | 1.4 Assess barriers to plan realisation<br>1.5 Analyse impact of relevant legislation, codes, regulations and standards on planning processes |
| 2. Develop preliminary project brief | 2.1 Develop project specifications, including new technology, according to client requirements<br>2.2 Draft sketch plan according to enterprise practice for area in question<br>2.3 Clarify project brief with client as required<br>2.4 Present final report with option for approval before proceeding with project brief |
| 3. Assess tenders | 3.1 Follow process for seeking quotes or issuing tenders for completion of project<br>3.2 Assess quotes or tenders against project criteria and any proposed variations<br>3.3 Examine detailed project costing estimates to ensure that budget parameters are attained<br>3.4 Assess competitive tenders with consideration to meet specified timeframes<br>3.5 Obtain tender approval from client |
| 4. Monitor contract progress and completion | 4.1 Monitor contract activity with progress against specifications<br>4.2 Establish and maintain regular liaison with project manager and site supervisor<br>4.3 Discuss contract problems or difficulties with project manager and contractor as required<br>4.4 Negotiate and implement contract variations<br>4.5 Prepare project completion advice in conjunction with project manager, installation manager and operational staff<br>4.6 Undertake quality audit of project and submit any recommendations for improvement according to enterprise procedures<br>4.7 Prepare final report on project outcomes and achievement<br>4.8 Present report to client and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.4, 1.5, 3.2-3.4, 4.1, 4.6 | • Draws on a broad range of strategies to build and maintain understanding throughout complex texts<br>• Identifies relevant information and extrapolates content to determine project impact, provide recommendations and confirm requirements |
| Writing | 1.1, 2.1-2.4, 3.1, 3.5, 4.2-4.7 | • Generates complex written texts, demonstrating control over a broad range of writing styles and purposes<br>• Demonstrates sophisticated writing skills by selecting appropriate conventions and stylistic devices to express precise meaning |
| Oral Communication | 1.1, 2.3, 2.4, 3.5, 4.2-4.6 | • Clearly articulates information using relevant language suitable for specific audiences and checks for understanding<br>• Participates in a verbal exchange of ideas and solutions and uses detailed and clear language to clarify and present information according to requirements and audience |
| Numeracy | 1.3, 2.1, 2.2, 3.2-3.4, 4.1, 4.6 | • Uses highly developed numeracy skills to interpret complex financial information and perform difficult calculations<br>• Performs mathematical calculations to analyse labour, costs and quantities, and accurately process costs and estimates |
| Navigate the world of work | 1.5, 3.1, 4.6 | • Considers legal requirements and organisational policies and procedures relevant to own role |
| Interact with others | 2.4, 4.8 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.2-1.4, 2.1, 3.2, 3.4, 4.1, 4.6 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Develops plans to manage relatively complex, non-routine tasks<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause of a problem rather than the |


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| | | |
|---|---|---|
| | | symptom<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities |

## Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG503 Prepare a project brief | ICTPMG5031A Prepare a project brief | Updated to meet Standards for Training Packages | Equivalent unit |

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG503 Prepare a project brief

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- develop a project brief for a telecommunications project
- analyse and document considerations in project specifications
- apply legislative and environmental conditions to project brief development
- appropriately assess tenders
- monitor contract work to completion.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the key aspects of common client telecommunications applications and related equipment
- discuss the telecommunications workplace and industry environment, and how it affects project design
- describe leasing versus purchase options
- identify legislative and environmental impacts, including options for green information and communications technology (ICT) installations
- identify and discuss the key features of network and transmission equipment
- discuss a variety of network topologies, interface and interconnect solutions
- describe the performance parameters and typical faults in equipment and related connection and transmission media, and various test equipment types
- identify the key features of warranty information and contractor work guarantees.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- sites on which projects may be conducted
- relevant databases, legislative requirements and other site and project related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG504 Prepare project specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop specifications for a telecommunications project, including switching, transmission and radio networks, and the various transmission paths including cable, optical fibre, radio, microwave and satellite.

It applies to individuals who have a high level of specialist technical skills and knowledge in telecommunications and IT networks using internet protocol (IP) systems and who may supervise others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for project estimate | 1.1 Analyse project design obtained from appropriate personnel to determine project requirements according to project plan<br>1.2 Verify project requirements with clients and project team |


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| | |
|---|---|
| | 1.3 Ascertain impact of time restraints on estimate<br>1.4 Analyse impact of relevant legislation, codes, regulations and standards on planning processes<br>1.5 Establish availability of all appropriate data and documentation to allow for completion of work |
| 2. Estimate resource requirements | 2.1 Conduct site inspection to verify design details and project context<br>2.2 Produce estimate of type, quantity and schedule of resources required for project from project plans<br>2.3 Prioritise sequence of work appropriate to enterprise needs<br>2.4 Calculate contractor and employee labour hours required according to project requirements, industrial awards and enterprise policies<br>2.5 Record estimates of materials, equipment and labour hours according to enterprise guidelines |
| 3. Calculate costing details | 3.1 Estimate amount and type of resources required for successful completion of project, including risk management and contingencies<br>3.2 Calculate costs for resources from current information, following standard costing procedures<br>3.3 Produce detailed record of all required resources and costing details for project specifications |
| 4. Prepare detailed project plan | 4.1 Prepare detailed plan, including specifications for materials, equipment, resources, locations and network routes<br>4.2 Forward plan and specifications to appropriate personnel for project implementation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.4 | • Analyses and interprets text in a variety of forms to determine key information and design requirements |
| Writing | 1.2, 1.5, 2.5, 3.2, 3.3, 4.1 | • Records and presents information according to enterprise requirements<br>• Develops accurate technical documents and diagrams using language and structure appropriate to the audience and requirements |


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| | | |
|---|---|---|
| Oral Communication | 1.2, 1.5, 2.1 | • Conveys information using language suitable for specific audiences<br>• Uses listening and questioning skills to clarify understanding |
| Numeracy | 1.3, 2.2-2.5, 3.1-3.3 | • Performs mathematical calculations to analyse labour, costs and quantities to accurately process costs and estimates<br>• Applies financial modelling skills to identify, analyse and evaluate budgetary information, time durations and human resource allocations |
| Navigate the world of work | 1.4, 2.4, 2.5 | • Considers legal requirements and organisational policies and procedures when planning and implementing a project |
| Interact with others | 2.4, 4.2 | • Selects the appropriate form, channel and mode of communication for a specific purpose |
| Get the work done | 1.1, 1.3, 1.5, 2.1-2.4, 3.1 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause of a problem rather than the symptom<br>• Uses problem solving skills to analyse and evaluate effective solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG504 Prepare project specifications | ICTPMG5039A Prepare project specifications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG504 Prepare project specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- analyse project design to determine specification options
- prepare estimates and calculate the cost of resources for a telecommunications project
- prepare detailed project plan, including specifications for resources and network routes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain common client telecommunications applications and related equipment
- describe cost effective solutions employed in planning
- describe and apply drafting techniques
- explain the workplace and industry environment
- describe the impact of legislative and environmental impacts, including options for green information and communications technology (ICT) installations
- identify and evaluate the benefits of different network and transmission equipment
- identify and evaluate the benefits of different network topologies and interface and interconnect solutions
- identify the possible implications for a planned design on health and safety
- identify and describe various warranty information and contractor work guarantees.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- sites on which projects may be conducted
- relevant databases, legislative requirements and other site and project related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG601 Establish ICT project governance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish an information and communications technology (ICT) project, with a governance framework within small, medium or large organisations.

It applies to individuals who may be required to use advanced project management skills in developing logical and sustainable IT project plans using organisational/established benchmarks and ethical practices.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish project governance framework | 1.1 Assess current project methodology and determine state of project management maturity<br>1.2 Determine governance framework<br>1.3 Appoint project governance team<br>1.4 Establish project governance reporting processes |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Establish project governance roles and responsibilities | 2.1 Agree with project sponsor on responsibilities<br>2.2 Delegate steering committee or project board responsibilities<br>2.3 Confirm project manager responsibilities |
| 3. Establish IT project stakeholder expectations | 3.1 Educate stakeholders on characteristics of ICT projects<br>3.2 Develop and maintain project relationships<br>3.3 Negotiate successful project outcomes |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Interprets and analyses complex text in order to ascertain requirements |
| Writing | 1.4, 2.3 | • Develops documents that present ideas and directives in an acceptable sequence and in a precise manner |
| Oral Communication | 1.1-1.3, 2.1-2.3, 3.1-3.3 | • Determines requirements through active listening, use of open ended questioning and paraphrasing<br>• Uses appropriate language and style to present complex or technical information and ideas appropriate to the audience<br>• Facilitates successful discussions by comparing and building on ideas of others and ensuring a win-win outcome |
| Navigate the world of work | 1.3, 1.4, 2.1-2.3 | • Recognises and follows explicit and implicit protocols when establishing reporting processes, appointing team and establishing roles and responsibilities |
| Interact with others | 2.2, 2.3, 3.2, 3.3 | • Demonstrates understanding of what to communicate, with whom and how, when developing and maintaining project relationships, negotiating outcomes and educating stakeholders<br>• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and taking a |


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| | | |
|---|---|---|
| | | leadership role on occasion |
| Get the work done | All | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant information and risks, and identify and evaluate alternative strategies and resources<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG601 Establish ICT project governance | ICAPMG601A Establish IT project governance | Updated to meet Standards for Training Packages.<br><br>Minor edit to competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG601 Establish ICT project governance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- assess the project environment
- establish or implement an information and communications technology (ICT) project management governance framework
- negotiate with stakeholders to agree achievable project objectives.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the organisation’s industry
- outline the organisation's current information systems and processes
- explain organisational policies and procedures, including:
  - project management and procurement policies
  - environment
  - duty of care
  - contract
  - company
  - freedom of information
  - industrial relations
  - privacy and confidentiality
  - due diligence
  - records management
- explain project governance approaches and methods


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- outline relevant legislation and regulations that impact on project governance.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work, and include access to office equipment, materials and industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG602 Manage ICT project initiation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to initiate an information and communications technology (ICT) project within small, medium or large organisations.

It applies to individuals who may be required to apply project management skills to establish the necessary foundation to facilitate successful delivery of agreed project outcomes.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define project | 1.1 Define business problems and initial scope<br>1.2 Identify key stakeholders and analyse stakeholder needs<br>1.3 Define project constraints |
| 2. Develop project business case and feasibility | 2.1 Identify project objectives and benefits<br>2.2 Identify and select feasible ICT solutions<br>2.3 Develop and present the business case or feasibility study<br>2.4 Obtain appropriate sign-off |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Select project approach | 3.1 Identify project core technology areas<br>3.2 Identify solution approach requirements<br>3.3 Negotiate project outcomes |
| 4. Establish the ICT project team | 4.1 Identify and select team members<br>4.2 Establish team member roles and responsibilities<br>4.3 Develop a cohesive technical team<br>4.4 Train and support team members |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1, 2.2, 3.1, 3.2 | • Interprets and analyses complex textual data to ascertain requirements |
| Writing | 1.1, 1.3, 2.3 | • Prepares a well-structured and cohesive document presenting alternative views, evidence and recommendations utilising technical language and correct spelling and grammar |
| Oral Communication | 1.1-1.3, 2.3, 2.4, 3.3, 4.4 | • Determines requirements through active listening, use of open ended questioning and paraphrasing<br>• Uses appropriate language and style to present complex or technical information and ideas appropriate to the audience<br>• Facilitates successful discussions by comparing and building on ideas of others and ensuring a win-win outcome |
| Numeracy | 2.3 | • Tests the viability of data by completing estimates and cost comparisons using relevant mathematical calculations |
| Navigate the world of work | 2.4 | • Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Interact with | 4.1-4.4 | • Invests time and energy in building rapport with others as an integral part of all work based |


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| | | |
|---|---|---|
| others | | interactions<br>• Plays a lead role in situations requiring effective collaboration, demonstrating high level influencing skills, focusing and shaping awareness, and engaging and motivating others<br>• Shares knowledge, experience information and resources with others as an integral part of work relationships<br>• Seeks to establish a climate in which it is possible to clarify and share the real needs and issues |
| Get the work done | 1.1-1.3, 2.2, 3.1-3.3 | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• May use formal analytical and lateral thinking techniques for identifying issues, generating and evaluating feasible ICT solutions<br>• Considers the strategic and operational potential of digital trends when selecting ICT solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG602 Manage ICT project initiation | ICAPMG602A Manage IT project initiation | Updated to meet Standards for Training Packages.<br><br>Minor edit to competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG602 Manage ICT project initiation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce a comprehensive business case information and communications technology (ICT) project implementation approach that takes into account core technology limitations and project constraints
- establish and work in a cohesive project team.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the characteristics of leadership and technical teams
- describe the consultation and communication techniques, styles and strategies, including interviewing techniques required when managing a project
- describe estimation and cost analysis techniques
- explain the process of establishing technical teams and determining stages of team development
- describe the process of setting objectives and conducting a benefits analysis
- identify the organisational values, policies and processes that are applicable to the project
- describe performance management and project team appraisal methods
- identify and describe the processes for monitoring team and own performance
- explain cash flow and how it is managed through budgeting
- describe a range of project management methods and tools, and how they apply in a formal project management methodology
- explain the proposed systems analysis and modelling techniques
- summarise the process of determining team roles, and describe the delegation process within a multi-project methodology context


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- explain the proposed technology solution models and frameworks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work and include access to:

- industry software packages
- an organisation's identified problem, opportunity or unfulfilled legislative need.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG603 Manage ICT project planning

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan and manage an information and communications technology (ICT) project within small, medium or large organisations.

It applies to individuals who may be required to apply advanced project management skills in developing and documenting logical processes and timelines to ensure that projects are delivered in accordance with stakeholder expectations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish project control plans | 1.1 Develop the project management plan<br>1.2 Develop management sub-plans |
| 2. Determine appropriate methodology | 2.1 Assess models of project management<br>2.2 Assess product development or procurement approach<br>2.3 Select appropriate project management and systems development methodology |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.4 Tailor methodologies to solution requirements |
| 3. Develop project schedule | 3.1 Develop project component breakdown<br>3.2 Estimate project effort and duration<br>3.3 Create project schedule<br>3.4 Develop and allocate work packages<br>3.5 Establish schedule controls |
| 4. Finalise project budget | 4.1 Identify areas of anticipated project spend<br>4.2 Determine dollar amounts and timing of cash flows<br>4.3 Develop a project budget<br>4.4 Establish budget controls |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2 | • Interprets and analyses complex text to ascertain requirements |
| Writing | 1.1, 1.2, 2.4, 3.1, 3.3-3.5 | • Develops documents that present ideas in logical and precise sequence while establishing inter-relationships between project stages<br>• Presents ideas in a manner that is prescriptive and eliminates ambiguity |
| Oral Communication | 1.1, 1.2, 2.1, 2.2 | • Determines requirements through active listening, use of open-ended questioning and paraphrasing<br>• Uses appropriate language and style to present complex or technical information and ideas appropriate to the audience<br>• Facilitates successful discussions by comparing and building on ideas of others and ensuring a win-win outcome |
| Numeracy | 3.2, 4.2-4.4 | • Uses sound mathematical assumptions and applies equations in developing cost-benefit analyses, budgets and cash flows |


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| | | |
|---|---|---|
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communications<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• May invest time in developing and shaping several options before making a final choice, using a combination of lateral and analytical thinking to choose an idea to suit needs, resources and constraints |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG603 Manage ICT project planning | ICAPMG603A Manage IT project planning | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG603 Manage ICT project planning

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop an information and communications technology (ICT) project management plan
- select appropriate methodology
- develop project schedule
- develop a project budget
- establish budgetary controls.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline current and emerging industry practice in relation to:
  - estimation techniques and methods
  - planning techniques and methods
  - project management methodologies
  - system development methodologies
- explain the impact of business needs on project management, including implications for project control and expected returns on business investment.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work and include access to:


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- industry software packages
- an organisation's identified problem, opportunity or unfulfilled legislative need.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG604 Manage ICT project delivery

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage the creation and delivery of the products of an information and communications technology (ICT) project within small, medium or large organisations.

It applies to individuals who are required to manage teams and apply high-level project management, business and technical skills necessary to ensure that the project delivered is consistent with system requirements and agreed design.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage systems analysis and design | 1.1 Apply systems thinking to project design<br>1.2 Model ICT process and systems according to specifications<br>1.3 Re-engineer business processes<br>1.4 Control ICT systems development<br>1.5 Review ICT architecture |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.6 Manage the design and integration of the system |
| 2. Facilitate project-related workshops | 2.1 Apply facilitation techniques<br>2.2 Apply problem-solving techniques<br>2.3 Facilitate requirements gathering<br>2.4 Facilitate ICT design workshops |
| 3. Manage ICT project team performance | 3.1 Establish a project team performance framework<br>3.2 Measure team member performance<br>3.3 Manage the technical staff performance<br>3.4 Manage project team dissolution |
| 4. Manage the project delivery cycle | 4.1 Delegate project work to project team members<br>4.2 Review and report status of project<br>4.3 Assess progress and update plans<br>4.4 Assess the quality of deliverables and rectify where required<br>4.5 Control project issues and take corrective action<br>4.6 Update project control documents |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.5, 2.3, 2.4, 4.2-4.5 | • Interprets and analyses models, diagrams and specifications for appropriate inclusion into the project requirements, plans and methodologies |
| Writing | 1.2, 2.3, 3.1, 4.1-4.3, 4.6 | • Uses technically specific language in developing design solutions for communication to project-team members and technical staff<br>• Articulates researched information and presents this in a clear, concise sequential and grammatically-correct manner, and in a writing style that is appropriate to the audience |
| Oral | 1.2, 1.6, 2.1, 2.3, | • Uses appropriate language and style when presenting complex ideas to all stakeholders to |


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| | | |
|---|---|---|
| Communication | 2.4, 3.1-3.4, 4.1-4.5 | ensure that project requirements are understood<br>• Facilitates successful discussions by employing effective listening, questioning and summarising skills to ensure that the audience fully understands the proceedings |
| Interact with others | 2.1-2.4, 3.1-3.4, 4.1 | • Shares knowledge, experience, information and resources with others as an integral part of work relationships when facilitating design workshops<br>• Plays a lead role in situations requiring effective collaboration, demonstrating high-level influencing skills, focusing and shaping awareness, and engaging and motivating others |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• May use formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG604 Manage ICT project delivery | ICAPMG604A Manage IT project delivery | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG604 Manage ICT project delivery

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and design the system
- facilitate workshops for design development
- manage the project team performance
- manage the project delivery cycle.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the formal management methodology, including project management roles and responsibilities
- identify the problem-solving tools and techniques
- identify and describe information and communications technology (ICT) process models and their application
- explain the key requirements of ICT design
- outline the business processes applicable to the project.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work and include access to:

- industry software packages
- an organisation's identified problem, opportunity or unfulfilled legislative need.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG605 Manage ICT project closure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to decommission or close an information and communications technology (ICT) project within a small, medium or large organisation.

It applies to individuals who may be required to use advanced project-management skills in undertaking a strategic assessment of the status of a project.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate project performance | 1.1 Collect project performance metrics<br>1.2 Debrief project team<br>1.3 Debrief project stakeholders<br>1.4 Summarise and report on results |
| 2. Finalise the project | 2.1 Review project performance to determine whether the project should be continued, decommissioned or closed |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Assess the impact of continuing, decommissioning or closing the project<br>2.3 Recommend appropriate management action to the relevant governing authority<br>2.4 Decommission or close the project if required |
| 3. Action outstanding activities | 3.1 Identify outstanding activities and create an action plan<br>3.2 Assign responsibilities to action outstanding activities<br>3.3 Follow up outstanding activities to ensure completion |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1, 2.2, 3.1 | • Analyses complex textual data to ascertain completion of project components and identify issues and root causes to facilitate the formulation of the appropriate recommendation |
| Writing | 1.4, 2.3, 3.2 | • Presents information in a logical manner and clear of any ambiguities using technical language appropriate to the stakeholders<br>• Uses the appropriate technical language when compiling reports based on verifiable data<br>• Uses correct grammar, spelling and punctuation when presenting options and recommendations to allow for an appropriate decision to be generated/formulated |
| Oral Communication | 1.1-1.4, 2.3, 2.4, 3.1-3.3 | • Uses appropriate language and style when with parties of various levels to ensure that the information being delivered accurately represents project status based on available analytical data, and that it is understood by all stakeholders<br>• Uses language that is appropriate when negotiating the best outcomes<br>• Facilitates discussions using active listening, questioning and summarising when undertaking reviews, debrief sessions and presentations to ensure the efficient exchange of ideas |


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| | | |
|---|---|---|
| Numeracy | 1.1, 2.2 | • Analyses complex numerical information embedded in performance metrics |
| Get the work done | 2.1-2.3, 3.1-3.3 | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG605 Manage ICT project closure | ICAPMG605A Manage IT project closure | Updated to meet Standards for Training Packages.<br><br>Minor edits to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG605 Manage ICT project closure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review relevant project documentation, including project metrics
- analyse the project performance
- recommend and plan the decommissioning or closure of a complex information and communications technology (ICT) project.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify project stakeholders
- explain the problem-solving techniques to address issues related to project closure
- outline the project management methods, practices and processes
- identify and describe project performance metrics.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work and include access to industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG606 Manage ICT project quality

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement quality assurance processes using quality control data to ensure continuous improvement for the benefit of current and future information and communications technology (ICT) projects.

It applies to individuals who may be required to apply high level business management, quality and technical knowledge and skills to ensure that projects are delivered, evaluated and monitored in accordance with organisational quality management systems and processes.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish a quality management plan | 1.1 Determine project quality requirements with reference to project scope and stakeholder needs and expectations<br>1.2 Adopt or agree on organisational quality policy and quality standards with stakeholders<br>1.3 Determine project quality management approach, including proposed quality assurance processes and quality control measurement methods and benchmarks |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Negotiate project quality, cost, time trade-offs and changes to stakeholder expectations if necessary<br>1.5 Develop a quality management plan for the project and obtain sign-off |
| 2. Perform ICT quality assurance processes | 2.1 Execute quality assurance activities as the project progresses according to the quality management plan<br>2.2 Identify project processes not meeting quality standards agreed in the quality management plan<br>2.3 Raise project change request to action process changes or corrective actions, update project management plan and quality baselines as necessary |
| 3. Perform quality control | 3.1 Validate project processes and deliverables against quality requirements as the project progresses<br>3.2 Review quality control metrics and take action as necessary to investigate and understand the reasons for failure<br>3.3 Use quality management tools to determine failures and root causes, and implement continuous improvement processes |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1 | • Interprets and analyses complex textual data to identify stakeholder requirements, establish project scope and identify issues |
| Writing | 1.4, 1.5 | • Compiles the project management plan using technical language appropriate to the readers<br>• Presents project components in a logical and prescriptive manner to ensure clarity of expectations<br>• Uses writing style that meets organisational requirements when presenting plans and negotiating approvals for complex projects |
| Oral Communication | 1.1-1.5, 2.1-2.3 | • Uses effective listening, questioning and summarising skills when participating or facilitating discussions crucial to the development of project |


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| | | |
|---|---|---|
| | | management plans<br>• Uses appropriate language when addressing individuals or groups and when discussing audit results and negotiations |
| Numeracy | 1.4, 3.2, 3.3 | • Uses mathematical and statistical formulae when validating researched data necessary to support the project management strategy and evaluate project quality metrics |
| Get the work done | 1.1-1.5, 2.1, 2.2, 3.1, 3.2, 3.3 | • Uses a combination of formal logical planning processes and an increasingly intuitive understanding of context to identify relevant information and risks<br>• Identifies and evaluates alternative strategies and resources<br>• May use formal analytical and lateral thinking techniques for identifying issues and generating and evaluating possible solutions<br>• Recognises the potential of new approaches to enhance work practices and outcomes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG606 Manage ICT project quality | ICAPMG606 Manage IT project quality | Updated to meet Standards for Training Packages.<br><br>Minor edit to competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG606 Manage ICT project quality

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare a quality management plan
- identify and implement appropriate quality management processes within a complex information and communications technology (ICT) project
- evaluate performance using quality assurance processes
- prepare quality reports.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the problem-solving tools and techniques
- identify and explain project management roles and responsibilities
- outline the quality improvement processes and methodology
- explain the quality management theory, techniques, tools and methodologies
- identify and describe the purpose of quality standards and benchmarks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work and include access to:

- industry software packages
- facilities suitable for holding quality assurance problem-solving workshops.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG607 Manage and control ICT project risks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage and control risks in an information and communications technology (ICT) project within small, medium or large organisations.

It applies to individuals who may be required to apply a high level of business, technical and risk management skills to ensure that project risks are managed and controlled in accordance with organisational risk management strategies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify project risks | 1.1 Review project planning documents, organisational risk policies and relevant lessons learned from earlier projects<br>1.2 Identify major project risks and potential sources of project risk<br>1.3 Establish relevant risk management processes and procedures<br>1.4 Develop a project risk management plan, including a risk |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | register in consultation with stakeholder and obtain sign-off |
| 2. Treat project risks | 2.1 Assess the likelihood of the risk occurring and the resulting consequence of the risk<br>2.2 Develop risk-response strategies and contingency measures as appropriate<br>2.3 Incorporate risk-response actions and contingency measures into the risk register and project schedule in consultation with stakeholders and obtain sign-off |
| 3. Monitor project risks | 3.1 Undertake activities to monitor the risk factors or identified events as the project progresses<br>3.2 Establish formal risk reviews at appropriate intervals or project milestones<br>3.3 Update risk register and raise project change requests to update baseline project schedule as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1 | • Interprets and analyses complex textual information and other relevant data to ensure the proper identification of project risks |
| Writing | 1.3, 1.4, 2.2, 3.3 | • Uses technical language in compiling complex strategic documents and support materials, and presents this information in a logical manner using correct grammar and spelling |
| Oral Communication | 1.2-1.4, 2.1-2.3, 3.1, 3.2 | • Uses techniques including active listening, open-ended questioning and paraphrasing when gathering information<br>• Uses appropriate language and style to present complex technical information and ideas appropriate to the audience |
| Get the work done | 1.1-1.3, 2.1, 2.2, 3.1, 3.2, 3.3 | • Uses a combination of formal logical planning processes and an increasingly intuitive understanding of context to identify relevant information and risks, |


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| | | |
|---|---|---|
| | | and identify and evaluate alternative strategies and resources<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG607 Manage and control ICT project risks | ICAPMG607A Manage and control IT project risks | Updated to meet Standards for Training Packages.<br><br>Minor edits to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG607 Manage and control ICT project risks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify actual and potential risks within a complex information and communications (ICT) project
- establish risk management processes and procedures
- develop and implement risk management plan
- monitor risk factors and update risk management strategies.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the methods and techniques of risk management
- identify organisational policies relating to risk and organisational risk potential
- explain processes and techniques of business analysis
- outline the project management and systems development techniques and their associated potential risks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work and include access to:

- industry software packages
- project documentation
- relevant organisational documentation.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG608 Manage ICT project systems implementation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

ly to this unit at the time of publication.This unit describes the skills and knowledge required to manage the system-implementation process in an information and communications technology (ICT) project within small, medium or large organisations.

It applies to individuals who may be required to use high-level business management technical and communication skills to ensure that ICT projects are implemented to ensure alignment with project and system development documentation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for system implementation | 1.1 Review relevant project and system development documentation<br>1.2 Consider organisational culture as part of an implementation risk analysis<br>1.3 Identify implementation options and constraints, and select a preferred approach in consultation with stakeholders<br>1.4 Develop a detailed implementation plan and a high-level |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | training plan and obtain sign-off<br>1.5 Ensure the creation of system user documentation and obtain sign-off<br>1.6 Ensure the preparation of operations documentation and obtain sign-off |
| 2. Manage organisational change | 2.1 Communicate relevant information about the pending change through appropriate channels<br>2.2 Establish necessary support structures |
| 3. Coordinate release management | 3.1 Establish and confirm release management roles and responsibilities, including those of the release manager<br>3.2 Determine release configuration items, including any production system software, hardware and capacity changes required, and compile a request for change<br>3.3 Ensure the creation of required test environment<br>3.4 Establish ongoing monitoring procedure to cover the post-release warranty period<br>3.5 Undertake data conversion activities if needed |
| 4. Manage acceptance testing | 4.1 Review results of system test and ensure acceptance test entry criteria are met<br>4.2 Ensure test environment and ICT configuration management processes meet solution requirements and organisational standards<br>4.3 Ensure acceptance testing is performed and results are collated<br>4.4 Ensure test results meet acceptance test exit criteria and obtain sign-off |
| 5. Manage user training | 5.1 Undertake training needs analysis<br>5.2 Review high-level training plan and schedule, and add detailed activities as necessary<br>5.3 Ensure training materials are prepared and user training is conducted |
| 6. Release system to production | 6.1 Develop an hour-by-hour action plan or checklist for release activities<br>6.2 Create a rollback strategy and plan to guide rollback of changes if required |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 6.3 Prepare appropriate communication to inform users of possible interruption to service due to the release<br>6.4 Manage the installation of the new release into production and ensure performance of operational verification tests and rollback changes if necessary<br>6.5 Review and update service level agreements (SLAs) and disaster recovery plan |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 3.1, 3.2, 4.1-4.4, 5.1-5.3, 6.4, 6.5 | • Interprets and analyses complex textual information to ensure that all requirements are identified, understood and appropriately addressed |
| Writing | 1.4-1.6, 2.1, 2.2, 3.1, 4.3, 5.1-5.3, 6.1-6.3, 6.5 | • Uses high-level of narrative and technical language in developing and presenting ideas and information of a complex nature to ensure that these are understood by stakeholders<br>• Presents qualitative test results in a manner that is consistent with organisational and industry standards |
| Oral Communication | 1.1, 1.3-1.6, 2.1, 2.2, 3.1-3.5, 4.1-4.4, 5.1-5.3, 6.4 | • Uses appropriate language and style, effective listening, questioning and summarising skills when presenting complex ideas to all stakeholders to ensure that project requirements and test results are clearly understood |
| Get the work done | All | • Develops flexible plans for complex, high-impact activities with strategic implications that involve a diverse range of stakeholders with potentially competing demands when preparing for system implementation<br>• Sequences and schedules complex activities, monitors implementation and manages relevant communication when managing organisational change, coordinating release management, managing testing, user training and release of |


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| | | |
|---|---|---|
| | | system to production<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG608 Manage ICT project systems implementation | ICAPMG608A Manage IT project systems implementation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG608 Manage ICT project systems implementation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review and analyse the project documentation and prepare an implementation plan
- communicate and establish structure in preparation for change
- coordinate the release of new system
- manage the system tests and acceptance
- manage the training of users
- release the system to production.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the methods and techniques of configuration management
- describe organisational policies and standards relating to information and communications technology (ICT) configuration management
- explain the business analysis, processes and techniques appropriate to the project
- explain the project management and systems development processes, as well as potential risks associated with implementation activities
- outline the structure and implications of disaster recovery plans and Service Level Agreements (SLAs)
- explain what a "training needs analysis" is and its role in a training program
- describe the purpose of a "rollback strategy" for an ICT project.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work and include access to:

- industry software packages
- project documentation
- relevant organisational documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG609 Plan and direct complex ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify, plan, control and finalise complex information and communications technology (ICT) projects.

It applies to individuals who may be required to use high-level business and project management skills to ensure effective and timely delivery of projects.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Project management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the strategic and operational needs of the ICT project during the planning phase | 1.1 Identify the strategic and operational needs of the project during the planning phase<br>1.2 Identify and consider the project's strategic context and requirements<br>1.3 Identify and consider the organisation's strategic and business plans, and its output requirements<br>1.4 Identify and explore client requirements and the impact of legislation and industry codes and standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Conduct a risk management analysis and develop and document a risk-management plan |
| 2. Prepare the ICT project plan | 2.1 Define and document precise specifications and terms of reference for the project<br>2.2 Identify and document project budget, specified to a level that can be used for the management of sub-tasks<br>2.3 Define skills needed for the successful completion of project<br>2.4 Define, document and secure physical and other resources required to support the project<br>2.5 Develop and document timelines, schedules and critical path for the project, taking into consideration contingencies and planning for time slippages<br>2.6 Define and document a consultation strategy or process that will be used to inform clients, contractors and other interested parties of the project's progress, and seek their input as required |
| 3. Assemble the ICT project team and commence work | 3.1 Secure and brief appropriate project-team members regarding the project, their roles, levels of delegated responsibility and the outcomes to be achieved<br>3.2 Implement effective communication processes to coordinate work and inform team members of progress<br>3.3 Identify and communicate clear reporting processes for team members |
| 4. Manage the IT project | 4.1 Monitor project progress according to project plan requirements, using appropriate project management tools and methodologies<br>4.2 Manage team member performance, ensuring that their output is directed to the key performance indicators identified in the project plan<br>4.3 Make corrections, changes and additions to the project plan in light of changing circumstances to ensure project aims and outcomes<br>4.4 Monitor resourcing to support the project and make corrections to reflect changing circumstances<br>4.5 Report overall project progress to senior management or funding bodies as required and in line with the project plan |
| 5. Finalise the IT project | 5.1 Finalise the project in line with the project plan<br>5.2 Conduct handover to staff members responsible for the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | ongoing implementation or maintenance of project products or services efficiently, effectively and in line with organisational procedures<br>5.3 Debrief project team members and relevant stakeholders about the conduct of the project and the outcomes achieved<br>5.4 Prepare a report analysing the strengths and weaknesses of the project plan and the conduct of the project |
| 6. Use the IT project to contribute to improved policies and processes | 6.1 Identify and analyse opportunities for wider organisational learning, including changes to processes or policies generated by the project<br>6.2 Forward opportunities for future further developments following project completion for consideration by senior management<br>6.3 Consider the strategic impact of the project and feed into the organisation's ongoing strategic planning processes |

# Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1-2.3, 3.3, 4.1, 4.2, 5.1, 5.4, 6.1 | • Interprets and analyses complex textual information to ensure that all requirements are identified, understood, addressed and aligned with the organisational strategic and operational plans |
| Writing | 1.5, 2.1-2.6, 3.1-3.3, 4.3-4.5, 5.1-5.2, 5.4, 6.2 | • Uses high level of narrative and technical language in developing and presenting ideas and information of a complex nature in a logical and sequential manner, to ensure that these are understood by stakeholders |
| Oral Communication | 1.1-1.5, 2.1-2.6, 3.1-3.3, 4.1- 4.5, 5.2, 5.3, 6.2 | • Uses appropriate language and style, and effective listening, questioning and summarising skills when presenting complex ideas to all stakeholders to ensure that project requirements are clearly understood |
| Numeracy | 2.2 | • Uses sound mathematical assumptions and applies equations in developing budgets |


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| | | |
|---|---|---|
| Interact with others | 3.1-3.3, 4.2, 5.3 | • Plays a lead role in situations requiring effective collaboration, demonstrating high-level influencing skills, focusing and shaping awareness, and engaging and motivating others, including those who are geographically dispersed |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• May use formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions<br>• Recognises the potential of new approaches to enhance work practices and outcomes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG609 Plan and direct complex ICT projects | ICAPMG609A Plan and direct complex IT projects | Updated to meet Standards for Training Packages.<br><br>Minor edit to competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG609 Plan and direct complex ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, implement, manage and finalise a complex information and communications technology (ICT) project
- manage planning processes, scheduling, human resources, reporting and response to contingencies
- align projects with organisational strategies and requirements
- assess outcomes and provide recommendations that will refine and improve future ICT project management processes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the concepts of risk management planning and processes
- outline computer software functions and operation, including relevant proprietary software
- identify relevant current legislation, codes and standards
- explain sustainability requirements and ratings, including:
  - reporting mechanisms
  - conservation of energy
  - management of other resources
- explain tools and models of project management
- identify and explain organisational frameworks and functions, including:
  - enterprises
  - government bodies


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- industry associations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the ICT project management field of work and include access to:

- relevant computer software packages
- suitable hardware
- codes, standards and legislation relevant to the jurisdiction and the project
- project documentation
- research resources, including product information and data, theoretical texts and other information.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG610 Develop a project management plan

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge to develop a plan for a telecommunications project, including assessing project requirements and planning for all stages to completion and final documentation.

It applies to individuals who are likely to have responsibility for the provision of installations, maintenance, upgrades and new services.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare project management plan | 1.1 Evaluate and assess project brief and related documents<br>1.2 Produce document on project tasks and associated timelines, including installation processes and test requirements<br>1.3 Assess and produce document on resource requirements to assist allocation of appropriate resources |


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| | |
|---|---|
| | 1.4 Produce training plan assessing training needs and associated timelines for efficient project implementation<br>1.5 Determine and document budgetary requirements<br>1.6 Discuss roles of all identified parties associated with project to ensure their involvement<br>1.7 Produce project verification document, including monitoring and control processes, and review processes such as quality audits<br>1.8 Consult with all relevant parties prior to finalising draft plan and make changes as appropriate |
| 2. Develop and evaluate management plan | 2.1 Produce preliminary plan for consultation, including identified factors that may impact on realisation of project and observance of relevant legislation, codes, regulation and standards<br>2.2 Consult with client and clarify any amendments<br>2.3 Develop final plan with recommendations |
| 3. Finalise documentation | 3.1 Produce and document final plan to include implementation details and training needs<br>3.2 Present plan to client and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.3, 1.5, 1.6, 2.1-2.3, 3.1 | • Analyses and interprets textual information in a variety of forms to determine key information, requirements and project design |
| Writing | 1.2-1.5, 1.7, 1.8, 2.1-2.3, 3.1 | • Uses factual and technically specific language to document a range of requirements<br>• Uses appropriate formats and structures to present information logically for different audiences, and revises documents based on feedback and outcomes |
| Oral Communication | 1.5, 1.6, 1.8, 2.2, 3.2 | • Uses listening and questioning techniques to elicit the opinions of others and confirm understanding |


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| | | |
|---|---|---|
| | | • Influences discussions using selective language, tone and gestures to clearly articulate information and requirements |
| Numeracy | 1.3, 1.5 | • Performs highly developed mathematical calculations to analyse labour, costs and quantities to accurately process quotations and estimates |
| Navigate the world of work | 2.1 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Interact with others | 1.6, 2.2, 3.2 | • Collaborates with others, sharing information to build strong work groups and avoids behaviours that are not conducive to a productive environment<br>• Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.1-1.5, 1.7, 2.1, 2.3, 3.1, 3.2 | • Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and begins to recognise strategic and operational applications<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant project requirements and priorities<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables including the outcomes of previous decisions<br>• Recognises and addresses some unfamiliar problems of increasing complexity within own scope, recognising when to seek the advice of others |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPMG610 Develop a project management plan | ICTPMG6033A Develop a project management plan | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG610 Develop a project management plan

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine the project attributes and specifications
- prepare a coherent draft project management plan
- consult on and revise a project management plan
- document final project management plan and obtain sign off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the key attributes of common telecommunications applications and related equipment
- identify and evaluate the connections to carrier infrastructure or equipment
- identify current legislation relating to the design of installation of telecommunications equipment and connection to carrier services
- evaluate the advantages of leasing and purchase options to assist in delivering cost effective solutions
- identify and evaluate network and transmission equipment
- outline network topologies, and interface and interconnect solutions
- outline work health and safety (WHS) issues that need to be built into a plan, with consideration of:
  - electrical safety
  - materials handling
  - physical hazards
  - confined spaces
  - heights


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    - lifting
- describe and evaluate the power requirements and electrical safety aspects of the installation plan
- describe typical performance parameters and typical faults that may be encountered in client equipment and related connection and transmission media
- identify various test equipment types suitable for tests to be made
- identify warranty information for equipment supplies and contractor work guarantees.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- a telecommunications operations site with relevant technology and infrastructure
- relevant databases, legislative requirements and other project related documentation
- organisational documentation relating to equipment, warranties, leasing, contracts and audits.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG611 Prepare a detailed design brief

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare a detailed design brief to realise a building and equipment provisioning project, including costing, vendor and technology choices, scheduling and resourcing.

It applies to individuals with a high level of specialist technical skills and knowledge in optical telecommunications and IT networks using internet protocol (IP) systems for a new installation or upgrade of capacity or technology for an existing network or subsystem for convergence to next generation networks (NGN).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate design requirements | 1.1 Consult relevant legislation, codes, regulations and standards that impact on project<br>1.2 Determine need for enhancement to new or existing telecommunications network from telecommunications project plan |


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| | |
|---|---|
| | and associated project brief<br>1.3 Determine specific purpose and type of network growth and enhancement using collated data from other relevant sources<br>1.4 Consult client regarding enterprise criteria and determine timeframe for design plan<br>1.5 Establish and organise design resource requirements |
| 2. Evaluate information to prepare design drawings | 2.1 Obtain site access through consultation with affected property owners where project impacts on private property<br>2.2 Collect field data and propose ways to manage physical impediments that may affect building construction work<br>2.3 Verify existing equipment, equipment layouts and building services to plan for network growth<br>2.4 Ascertain impact of relevant heritage, environmental and other governmental legislation, and initiate action or organise consultative processes to gain approvals according to enterprise policy<br>2.5 Prepare design drawing according to enterprise requirements |
| 3. Select design option | 3.1 Analyse proposed network needs to determine set of realistic design options<br>3.2 Evaluate and select preferred design option according to approved enterprise criteria and discuss selected option with client<br>3.3 Assess system compatibility and make modifications to design |
| 4. Prepare design plan | 4.1 Prepare detailed design plan, including relevant geographical and topological information, equipment and material and cost estimates<br>4.2 Discuss final designs with planners and project management, and obtain approval to proceed<br>4.3 Produce final detailed design brief with drawings, material requirements, and testing and maintenance plans for operational staff to follow |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.3, 2.4 | • Analyses and interprets technical text in a variety of forms to determine key information, |


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|---|---|---|
| | | requirements and project design |
| Writing | 1.4, 2.1, 2.3-2.5, 3.2, 4.1-4.3 | • Develops accurate technical documents and diagrams for a specific audience, using clear and detailed language and diagrams to convey explicit information |
| Oral Communication | 1.4, 2.1-2.4, 3.2, 4.2, 4.3 | • Clearly articulates information using relevant language and persuasive techniques suitable for specific audiences |
| Numeracy | 1.4, 1.5, 2.5, 4.1 | • Uses mathematical calculations to determine costs, timelines and project specifications<br>• Accurately produces charts and other diagrams that capture site plans |
| Navigate the world of work | 1.1, 2.4, 2.5 | • Monitors adherence to all legislative and regulatory rights and responsibilities, and organisational policies and procedures<br>• Considers own role in terms of its contribution to the broader goals of the work environment |
| Get the work done | 1.2, 1.3, 1.5, 2.1-2.3, 3.1-3.3, 4.1 | • Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and recognises strategic and operational applications<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant project requirements and priorities<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account<br>• Recognises and addresses some unfamiliar problems of increasing complexity within own scope, recognising when to seek the advice of others |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG611 Prepare a detailed design brief | ICTPMG6034A Prepare a detailed design brief | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG611 Prepare a detailed design brief

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- assess the implications of legislation, regulations and standards on project design
- analyse the network and enterprise needs to determine design options
- consult widely to ensure design represents client requirements
- prepare a design brief for building and equipment design provisioning
- prepare detailed design documentation to enable realisation of design.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain common client telecommunications applications and related equipment
- identify and critique connections to carrier infrastructure or equipment
- describe cost-effective solutions in planning
- identify and explore current legislation relating to installation of telecommunications equipment and connection to carrier services
- review the range of client premises equipment (CPE)
- outline environmental impacts and options for green information and communications technology (ICT) installations
- review network and transmission equipment
- explain network topologies, and interface and interconnection solutions
- outline work health and safety (WHS) issues that are required to be included in the design brief for:
  - electrical safety
  - materials handling
  - physical hazards


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  - confined spaces
  - heights
  - lifting
- review the power requirements and electrical safety of the project
- explain technology of next generation networks (NGN)
- identify test equipment types.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- sites on which projects may be designed
- relevant databases, legislative requirements and other project related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG801 Manage a telecommunications workplace

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to fulfil workplace management responsibilities at a managerial and supervisory level in a telecommunications business environment.

It applies to individuals who combine technical skills with management skills to manage technical staff in an advanced technological environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Support human resources activities | 1.1 Assist and advise on recruitment action and induction of new staff<br>1.2 Monitor staff training needs and implement technical training activities for staff<br>1.3 Provide information and advice to relevant personnel<br>1.4 Review and advise on work health and safety (WHS) and security in workplace |


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| | |
|---|---|
| 2. Manage conflict in workplace | 2.1 Assess conflict situation<br>2.2 Determine ways to resolve conflict with conflicting parties<br>2.3 Apply decision making procedures to business model for conflict resolution |
| 3. Apply quality management systems and processes in workplace | 3.1 Document essential requirements of product using quality management approach<br>3.2 Assess relationship between client and owner to identify process to achieve agreement on measurable quality features<br>3.3 Analyse quality investigation for improvement by involving individuals, groups and managers |
| 4. Monitor work practices to ensure business objectives will be met | 4.1 Develop strategies, using management characteristics to meet business objectives<br>4.2 Analyse individual management objectives applicable to workplace<br>4.3 Produce business model representing activities of sound management plan for telecommunications workplace |
| 5. Determine human factors when managing people and groups | 5.1 Establish consultation processes between management and staff to resolve grievances<br>5.2 Analyse interpersonal skills required of managers and team leaders using identified communications channels<br>5.3 Conduct performance reviews and take appropriate action |
| 6. Perform work using self-organisation principles | 6.1 Evaluate methods of improving own productivity and perform a self-appraisal<br>6.2 Evaluate effectiveness of information processing methods used in workplace, applying time management techniques<br>6.3 Produce report to communicate information efficiently and effectively in workplace |
| 7. Apply effective communication techniques to business meetings | 7.1 Research levels, directions and effectiveness of channels used when communicating in business<br>7.2 Develop plan for managing business meetings in workplace |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 6.1 | • Uses investigative techniques to expand on existing knowledge and experience |
| Reading | 1.4, 3.1, 4.2, 7.1 | • Analyses and interprets textual information from a variety of sources to determine key information and requirements |
| Writing | 1.1-1.4, 3.3, 4.1-4.3, 5.1, 5.3, 6.3, 7.2 | • Develops material using an appropriate format containing clear, instructional and informative language to communicate specific information |
| Oral Communication | 1.1, 1.3, 1.4, 3.3, 5.3 | • Facilitates discussions by using listening and questioning techniques and appropriate tone to confirm understanding and obtain information<br>• Clearly articulates information using tone, pace and language appropriate for the audience |
| Navigate the world of work | 1.4 | • Considers own role in terms of its contribution to the broader goals of the work environment<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements to implement and manage change |
| Interact with others | 3.3, 5.2, 6.1 | • Invests considerable time and energy in building and maintaining effective working relationships within and beyond the immediate work context, recognising and intuitively responding to the subtle and complex mix of factors at play in every interaction<br>• Sets time aside for self-reflection, recognising personal strength and limitations, and exploring beliefs and assumptions about own behaviour and that of others<br>• Recognises potential for conflict in working with others and seeks to develop organisational processes to deal with conflict |
| Get the work done | 1.2, 2.1-2.3, 3.2, 4.1-4.3, 5.1, 5.3, 6.2 | • Recognises the critical importance of clarifying, focusing and aligning goals and expectations, and uses the process to build ownership of and broad commitment to |


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|---|---|---|
| | | achieving outcomes<br>• Takes responsibility for high impact decisions in complex situations involving many variables and constraints<br>• Uses formal analytical and lateral thinking techniques for identifying issues, and generating and evaluating possible solutions<br>• Articulates and challenges the values, beliefs and assumptions that shape thinking and routinely reframes and redefines problems to get new perspectives and generate new ideas<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG801 Manage a telecommunications workplace | ICTPMG8142A Manage a telecommunications workplace | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG801 Manage a telecommunications workplace

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine the human factors that need to be analysed when managing people and groups
- conduct business meetings, applying effective communication techniques
- determine essential requirements of a product, applying quality management principles
- monitor and implement training for staff
- resolve problems and conflicts professionally in a business environment
- support a human resources management program.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate equity and diversity legislation and underlying principles
- critique a range of organisational procedures and policies relating to human resources management
- assess work health and safety (WHS) requirements and contrast with legislation and regulations
- outline behaviour theories relevant to managing staff in a workplace
- summarise the effect of public sector legislation, codes of practice and other formal agreements that directly impact on business operations
- establish the technical aspects of telecommunications networks that impact directly on human resources management
- formulate strategies to manage the workplace and industry environment.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- a telecommunications workplace
- relevant enterprise documentation, including human resources and quality management policies.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG802 Manage a telecommunications project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to produce a plan, develop risk management strategies, prepare budgets, plan for contingencies, develop procedures for commissioning the project and archive project documentation.

It applies to individuals who implement specified projects for an installation or upgrade of the telecommunications network.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to manage project | 1.1 Develop project proposal, including specific project management processes from specifications and/or contracts<br>1.2 Document role of major stakeholders and implications for project<br>1.3 Develop risk management strategy and present to stakeholders for agreement |


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| | |
|---|---|
| | 1.4 Check for technical compliance of project with relevant standards<br>1.5 Select project management computer software<br>1.6 Conduct skills audit of personnel and identify additional training requirements |
| 2. Apply project management processes | 2.1 Determine participants' responsibilities using critical path method (CPM) to draw network diagram<br>2.2 Sequence and coordinate activities required for specific project<br>2.3 Determine critical path to optimise timing of project deliverables<br>2.4 Assess viability of project estimates by preparing budget<br>2.5 Perform risk analysis to determine factors that may hinder project deliverables<br>2.6 Assess progress of project with contingencies to manage risks<br>2.7 Determine any updates and recommendations in agreement with client<br>2.8 Determine if contract variations are required and make changes |
| 3. Complete work and document activities | 3.1 Make provision for commissioning and project completion<br>3.2 Produce final documentation with recommendations and present to client<br>3.3 Document and archive project documentation<br>3.4 Obtain sign off |

# Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1,1.4-1.6, 2.1, 2.5, 2.6, 2.8, 3.2 | • Analyses, interprets and compares a variety of textual material to determine key information and requirements |
| Writing | 1.1, 1.3, 1.6, 2.2, 2.5, 2.7, 2.8, 3.2, 3.3, 3.4 | • Produces technical documents using a cohesive format to clearly and logically convey a range of information and data |
| Oral Communication | 1.3, 2.7, 3.2 | • Facilitates discussions using listening and questioning techniques to confirm understanding and obtain required information |


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|---|---|---|
| | | • Clearly articulates information using relevant language and techniques to obtain a mutually acceptable result |
| Numeracy | 2.2, 2.4 | • Applies knowledge of mathematical formulas to estimate monetary requirements against a project plan and calculate required timelines against tasks |
| Navigate the world of work | 1.4 | • Monitors adherence to relevant standards, policies and procedures and considers own role in terms of its contribution to the broader goals of the work environment |
| Interact with others | 1.3, 3.2 | • Tailors every communication to achieve its purpose, demonstrating a sophisticated understanding of the needs, interests, issues and priorities of each audience |
| Get the work done | 1.1, 1.3, 1.5, 1.6, 2.1-2.7, 3.1, 3.3, 3.4 | • Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, actively looking for early warning signs and implementing contingency plans<br>• Takes responsibility for high impact decisions in complex situations involving many variables and constraints<br>• Operates from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, identifying and addressing issues and reallocating resources<br>• Defines benefits, costs, risks and feasibility from a broad range of perspectives, and thinks laterally to redesign aspects to address potential issues<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks, adapting some functions to improve personal efficiency |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG802 Manage a telecommunications | ICTPMG8143B Manage a telecommunications | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| project | project | Minor change to Performance Criteria | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG802 Manage a telecommunications project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare and apply a project management process to a telecommunications project using project management software
- develop a comprehensive plan to manage a telecommunications project with a risk management strategy, budget and contingencies
- complete work and project documentation accurately.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- critically analyse organisational project management policies and procedures
- assess safety management processes and procedures in a workplace environment including:
  - personal protective equipment conforming to industry and work health and safety (WHS) standards
  - precautions required to minimise, control or eliminate hazards that may exist during work activities
- evaluate the impact of relevant legislation, codes, regulations and standards on the management of a communications project
- assess the workplace and industry environment and its impact on project development to implementation, including:
  - commissioning procedures


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  - industrial issues
  - roles and responsibilities
  - skills audit
- evaluate the telecommunication systems and their impact on a project
- define the role that site engineering has on the development of a project management plan
- evaluate project management processes and the software packages available to assist management.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- a telecommunications site
- computers and relevant computer software
- relevant legislation, codes, regulations and standards.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG803 Undertake a telecommunications project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to research and plan a telecommunications project covering an extensive range of complexities and technologies.

It applies to telecommunications technical staff who undertake complex projects requiring high levels of planning and management, and combine technical and work health and safety (WHS) skills in planning and management work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section* |
| 1. Prepare for telecommunications project | 1.1 Obtain project plan from authorised personnel to identify nature of project and project specifications<br>1.2 Verify location of proposed project work according to appropriate plans<br>1.3 Critically analyse project specifications and research emerging telecommunications technology that may benefit project |


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| | |
|---|---|
| | 1.4 Consult authorised personnel to finalise project specifications and obtain agreement<br>1.5 Source project resources required, including those for safe work practice<br>1.6 Prepare contingency plans, including any risks that could impact on project<br>1.7 Develop project implementation plan according to standards with minimal workplace disruption, and obtain agreement from authorised personnel<br>1.8 Notify authorised personnel of possible network outage where required |
| 2. Carry out telecommunications project work | 2.1 Follow work health and safety (WHS) and environmental requirements according to plan and manufacturer's specifications<br>2.2 Inform appropriate personnel of existing and potential hazards on worksite<br>2.3 Perform project work phases according to agreed plan and accepted work practice<br>2.4 Implement project planning principles, including risks that may impact on project<br>2.5 Monitor project to completion to ensure that it is progressing according to plan and risks are minimised<br>2.6 Report on implementation phases |
| 3. Clean up worksite and complete documentation | 3.1 Remove and dispose of project waste and debris from worksite according to environmental requirements<br>3.2 Restore changes made to work area to client's satisfaction<br>3.3 Complete all project documents and present to client<br>3.4 Declare asset ready for commissioning and integration if required<br>3.5 Notify client and obtain sign off |

# Foundation Skills

*This section describes the Foundation Skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1-1.3, 1.7, 2.1 | • Organises, evaluates and critiques ideas and information from a wide range of complex texts<br>• Draws on a broad range of strategies to build and maintain understanding throughout complex texts |
| Writing | 1.4, 1.6-1.8, 2.2, 2.6, 3.3-3.5 | • Demonstrates sophisticated writing skills by selecting appropriate conventions and stylistic devices to express precise meaning<br>• Prepares documentation expressing ideas, explores complex issues and is constructed logically, succinctly and accurately |
| Oral Communication | 1.1, 1.2, 1.4, 1.7, 1.8, 2.2, 2.6, 3.2, 3.4, 3.5 | • Determines and confirms client requirements using collaborative and inclusive techniques including active listening and questioning<br>• Reads verbal and non-verbal signals to convey and clarify information and to confirm understanding |
| Numeracy | 1.5-1.7 | • Analyses and synthesises highly embedded mathematical information in a broad range of tasks and texts |
| Navigate the world of work | 1.7, 2.1, 3.1 | • Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are being met |
| Interact with others | 1.1, 1.2, 1.4, 1.8, 2.2, 2.3, 2.5, 3.2-3.5 | • Develops and implements communications strategies with internal and external persons to build rapport<br>• Influences and fosters a collaborative culture, facilitating a sense of commitment and workplace cohesion<br>• Shares knowledge, information and experience openly as an integral part of the working relationship<br>• Understands diversity and seeks to integrate diversity into the work context for managing change, making decisions and achieving shared outcomes |
| Get the work done | 1.1, 1.2, 1.5-1.7, 2.1-2.5, 3.1, 3.2, 3.4 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Makes high impact decisions in a complex and diverse environment, using input from a range of sources<br>• Addresses complex problems involving multiple variables, using formal analytical and lateral thinking techniques, experience and knowledge to focus on the root cause<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking |


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| | | |
|---|---|---|
| | | • Uses digital technologies to manage business operations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPMG803 Undertake a telecommunications project | ICTPMG7145B Undertake a telecommunications project | Updated to meet Standards for Training Packages<br><br>New code to reflect change in AQF level | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG803 Undertake a telecommunications project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- research and critically analyse the deliverables for a telecommunications project
- consult with relevant personnel to elicit and confirm project outcomes
- prepare plans for implementation, address contingencies and manage risk
- implement and monitor telecommunications project work and report progress to relevant personnel
- ensure project is completed in accordance with environmental and client requirements
- document the project outcomes and obtain client sign off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate organisational project management policies and procedures in relation to project development
- critically analyse the operation of transmitters and receivers
- explore the management of safety on projects and setting project policies and procedures for:
  - personal protective equipment conforming to industry and work health and safety (WHS) standards
  - precautions required to minimise, control or eliminate hazards that may exist during work activities
- evaluate the impact of relevant legislation, codes, regulations and standards on the project


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- explore the telecommunications system principles and operational procedures that contribute to project development, including:
  - personnel involved
  - project specifications
  - project resources
- evaluate the workplace and industry environment and its impact on development of the project.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- a telecommunications operations site on which a project can be carried out
- computers and relevant computer software
- relevant legislation, codes, regulations and standards.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPMG804 Evaluate and use telecommunications management networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to analyse, evaluate and monitor business performance using telecommunications management network (TMN) systems in the management of open systems in communications networks.

It applies to individuals who have a very high level of technical management skills and knowledge in telecommunications networks and systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – project management

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to evaluate and use telecommunications management network | 1.1 Research and evaluate network management architectures in common carrier and extended models<br>1.2 Evaluate features and functionality of Standards Committee International Telecommunications Union (ITU-T) TMN architecture and network models<br>1.3 Research and evaluate techniques for collecting management |


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| | |
|---|---|
| | information from network nodes using interrupts and polling<br>1.4 Analyse configuration management problems and produce assessment report on solutions by integrated network management systems |
| 2. Analyse fault management and accountability procedures | 2.1 Evaluate effectiveness of fault management processes from beginning to resolution, including automation of fault management<br>2.2 Analyse reasons for alarm correlation with process analysis and apply fault identification to network problems |
| 3. Plan for reliability and survivability | 3.1 Research and produce a report on quality of service (QoS) in a telecommunications context, including relevant international standards and range and type of possible monitoring parameters for QoS<br>3.2 Analyse reasons for service levels in telecommunications context<br>3.3 Perform linear and exponential trend analysis on real or simulated data for single monitoring parameter<br>3.4 Research and assess reliability and survivability in telecommunications context with reference to disaster and security management policies and procedures<br>3.5 Develop disaster recovery plan for telecommunications network |
| 4. Research and report network management techniques | 4.1 Research how accounting records are generated and used for both voice and data networks<br>4.2 Analyse process of generating bills from accounting records, configuration and client information<br>4.3 Research and report on network management techniques and standards used for internet<br>4.4 Research and report on standards used in simple network management protocol (SNMP) network management model and global system for mobiles (GSM) network<br>4.5 Analyse network management functions over CNET network simulation or similar data network and produce report on findings |

# Foundation Skills

*This section describes the Foundation Skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 3.1, 3.4, 4.1, 4.3-4.5 | • Analyses and interprets text to determine key information and applications<br>• Interprets textual and numerical information in a variety of forms, and applies the knowledge gained to evaluate methodologies |
| Writing | 1.2-1.4, 2.1, 2.2, 3.1-3.5, 4.2-4.5 | • Produces accurate technical documents for a specific audience using clear and detailed language and visuals to convey explicit information<br>• Prepares information that incorporates evaluation of information and specialised and cohesive language in a format and style appropriate for a specific audience |
| Oral Communication | 3.1, 4.3, 4.4 | • Clearly articulates information using relevant language and persuasive techniques suitable for specific audiences |
| Numeracy | 3.3, 4.1, 4.2 | • Applies mathematical techniques to analyse and report on technical requirements and implications |
| Get the work done | 1.1-1.4, 2.1, 2.2, 3.1-3.5, 4.1-4.5 | • Gathers and analyses data and seeks feedback to improve plans and processes<br>• Makes high impact decisions in a complex and diverse environment, using input from a range of sources<br>• Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities and decision making strategies where appropriate<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPMG804 Evaluate and use telecommunications management networks | ICTPMG8149B Evaluate and use telecommunications management networks | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPMG804 Evaluate and use telecommunications management networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- research and evaluate the architectural features and functions of network management systems
- research and report on the following:
  - the major features, configuration and functions of management systems
  - fault management and accountability procedures
  - the major features and functions of quality of service (QoS) agreements
  - network management techniques
- analyse the major features of planning for reliability and survivability.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate administrative network management systems
- review business models and business processes used in telecommunications management networks
- investigate enterprise solutions for a given situation
- evaluate operations network management systems
- determine organisational policies and procedures that relate to management systems
- evaluate the impact of the workplace and industry environment on the use of a telecommunications management system.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – project management field of work and include access to:

- a telecommunications operations site with a network management system
- networked computers with relevant software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG301 Apply introductory programming techniques

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create simple applications or games.

It applies to individuals with responsibility for creating applications or games and includes creating code, using programming standards, testing, and debugging.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Apply language syntax and layout | 1.1 Apply basic language syntax rules<br>1.2 Use language data types, operators, and expressions to create a clear and concise code<br>1.3 Apply the variables and variable scope<br>1.4 Use the library functions in a program<br>1.5 Use commenting to create a clear meaning to the code |
| 2. Apply control | 2.1 Apply the language syntax for sequence, selection and iteration |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| structures | constructs<br>2.2 Use logical operators to create expressions for use in selection and iteration constructs |
| 3. Code using standard algorithms | 3.1 Develop algorithms that use the sequence, selection and iteration constructs<br>3.2 Create and use arrays<br>3.3 Code the standard sequential access algorithms, for reading and writing text files, including end-of-file detection loops<br>3.4 Apply string manipulation |
| 4. Test the code | 4.1 Use debugging techniques to trace code execution and examine the variable contents to detect, and correct, errors<br>4.2 Create and conduct simple tests, to confirm that the code meets the design specification<br>4.3 Document the tests performed and results achieved |
| 5. Create an application or game | 5.1 Design an algorithm in response to basic program specifications<br>5.2 Develop the application or game to meet the program specification<br>5.3 Test and confirm that the application, or game, meets the initial specifications |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 1.2, 1.5, 4.3 | • Prepares workplace documentation, according to organisational formats and protocols<br>• Creates program code using the correct syntax |
| Numeracy | 2.2, 3.1, 5.1 | • Uses mathematical formulae to ensure that the program specifications are met |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 3.1, 3.2, 3.3, | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes |


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| | | |
|---|---|---|
| | 3.4, 4.1, 4.2, 5.2, 5.3 | • Uses problem-solving techniques to analyse the required outcomes, in order to determine the correct program code<br>• Uses a formal decision-making process, identifying and evaluating several choices against a limited set of criteria, when selecting syntax<br>• Evaluates the effectiveness of decisions in terms of how well they meet stated design specifications<br>• Uses the features of digital tools to complete complex tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG301 Apply introductory programming techniques | ICAPRG301A Apply introductory programming techniques | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG301 Apply introductory programming techniques

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- apply programming language syntax, sequence, selection and iteration control structures to the development of an application, or game
- produce an application, or game, that is designed and built from the program specifications
- confirm that the created application, or game, meets the original program specifications, and obtain user sign-off for the completed program.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe common games programming languages, their syntax, and command structure
- describe the development of small-sized applications or games.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the requirement documents
- the site documents
- software development tools currently used in industry, such as a compiler
- an independent development environment (IDE).


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG401 Maintain open-source code programs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to contribute as a member of an open-source software project community, and to maintain open-source code.

It applies to individuals working in software and system development, and maintenance. They may work as open-source software developers who are required to build, test and distribute open-source software applications, or as programmers responsible for integrating open-source components, tools or technologies into their applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Investigate the open-source paradigm | 1.1 Examine the open-source paradigm and analyse the differences with traditional software development models<br>1.2 Investigate the types of online resources<br>1.3 Investigate the types of project documentation<br>1.4 Recognise the role of an online community, and international |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | collaboration<br>1.5 Examine motivational factors for contributors to open-source code<br>1.6 Analyse the open-source licensing models |
| 2. Familiarise with target project | 2.1 Examine the online resources associated with the target project<br>2.2 Download pre-built executable binaries to install, and run, the project<br>2.3 Download and analyse the supporting documentation |
| 3. Prepare for maintenance activities | 3.1 Select, and register with, a relevant online community open-source group<br>3.2 Download nightly snapshots of the latest source code and the supporting documentation<br>3.3 Build and execute a snapshot, where appropriate |
| 4. Maintain the code | 4.1 Access the project bug database, and select the bugs to be resolved or the features to be added<br>4.2 Make changes to the local copy of the code, in order to resolve selected bugs<br>4.3 Test the resulting code to ensure that it performs appropriately<br>4.4 Prepare the code patch for submission<br>4.5 Submit a code patch to the project<br>4.6 Use the appropriate software-development tools and environment |
| 5. Maintain the documentation | 5.1 Access the project documentation<br>5.2 Prepare and contribute new information, or updates, to the existing documentation<br>5.3 Prepare and submit documented changes to the project |
| 6. Participate in community | 6.1 Exchange messages with other project members and actively participate in community activities<br>6.2 Take action to ensure that exchanges are socially acceptable<br>6.3 Submit the code and documentation code patches for inclusion<br>6.4 Access online project resources frequently, to keep up-to-date with the project and with community developments<br>6.5 Take action to ensure that community-participation standards are observed and maintained |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.6, 2.1, 2.3, 4.1 | • Interprets complex technical, and non-technical, information from a range of sources |
| Writing | 2.2, 2.3, 3.1, 4.2, 4.4, 5.2, 5.3, 6.1 | • Selects the vocabulary, grammatical structures and conventions, appropriate to the context and audience |
| Interact with others | 6.1, 6.2, 6.5 | • Collaborates with others in order to achieve the best possible outcome<br>• Selects and uses the appropriate conventions, and protocols, when conferring with community members |
| Get the work done | 1.4, 1.5, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 4.5, 4.6, 6.1, 6.2, 6.3, 6.4, 6.5 | • Applies analytical processes to resolve technical or conceptual problems<br>• Systematically gathers and analyses all relevant information, and evaluates options in order to make informed decisions<br>• Uses digital technologies to locate and store relevant information, and to communicate with others<br>• Uses a range of sophisticated digital tools and techniques to meet the desired outcomes |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG401 Maintain open-source code programs | ICAPRG401A Maintain open-source code programs | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG401 Maintain open-source code programs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- contribute to an open-source project
- program source code changes and/or additions
- document changes or additions
- investigate, utilise and participate in online resources for the project's direction
- build, modify, and test the code
- participate in the online community.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain debugging and testing techniques
- describe documentation techniques, including internal documentation, user guides and technical documentation
- explain open-source development methodology
- describe online project communities, and their involvement in games development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the software development environment
- the internet


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- technical requirements
- databases
- information repositories
- programming languages
- group-facilitation software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG402 Apply query language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to retrieve and manipulate information stored in information systems, using a query language.

It applies to individuals in a range of work environments, who are required to extract information from a source such as a database, a text file, or an extensible markup language (XML), by creating and running queries.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the requirements of developing queries | 1.1 Recognise various query-related terminologies<br>1.2 Identify the type of data source for a chosen query language<br>1.3 Identify and use the necessary tools, and environment, in building queries |
| 2. Write queries to retrieve and sort values | 2.1 Use an expression to retrieve values from a single unit<br>2.2 Use an expression to combine values from more than one unit |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Use an expression to sort values into a certain order |
| 3. Write queries to selectively retrieve values | 3.1 Use an expression to filter a sequence, based on a predicate or a condition<br>3.2 Use an expression to filter the subset of a sequence, based on a predicate or a condition<br>3.3 Use an expression to extract a specific value by position |
| 4. Perform a calculation in queries | 4.1 Use an expression to perform a calculation on numeric values<br>4.2 Use an expression to perform an operation on text values<br>4.3 Use an expression to perform an operation on date and time values |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3 | • Analyses and interprets technical data to determine requirements |
| Writing | 2.1-4.3 | • Writes and edits, computer code and technical data, ensuring the correct syntax and accuracy |
| Numeracy | 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3 | • Makes basic calculations involving arithmetical operations<br>• Makes estimates and comparisons involving date and time data |
| Get the work done | 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3 | • Uses digitally-based technologies and systems to enter, store and manage data |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG402 Apply query language | ICAPRG402A Apply query language | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG402 Apply query language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select and use tools in developing, storing, and executing queries to extract the appropriate data required for ad hoc reports, or to support developers
- incorporate calculations using control statements, operators and functions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the information gathering methods
- outline the data analysis techniques
- define data mining
- outline the characteristics of the data source
- explain the features of the information system
- explain typical systems and procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- a data source
- resources in the chosen query language
- documentation regarding client and functionality requirements
- resources to aid calculation.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG403 Develop data-driven applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create data-driven applications that access data from a range of sources, such as databases, object data sources or eXtensible markup language (XML).

It applies to individuals who may work as programmers or database application developers and who are responsible for data-access coding.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Select data-access layer (DAL) | 1.1 Review function of DAL in multi-layer application model<br>1.2 Determine data-access application programming interface (API) for connecting to various data sources |
| 2. Establish connection with data source | 2.1 Create and manage connection strings<br>2.2 Connect to data source by using different data providers<br>2.3 Create code to handle connection exceptions |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Execute commands and return results from data source | 3.1 Query data from data source<br>3.2 Retrieve data from data source as result sets<br>3.3 Manage result sets<br>3.4 Manage exceptions when retrieving data |
| 4. Modify data in data source | 4.1 Insert, update or delete data<br>4.2 Manage data integrity<br>4.3 Manage exceptions when modifying data |
| 5. Manage disconnected data | 5.1 Research disconnected data management strategy<br>5.2 Ensure that application can deal with disconnected data |
| 6. Document data-access layer | 6.1 Document code<br>6.2 Document database connectivity |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 3.1, 5.1 | • Interprets complex technical documents to ensure outcomes are met |
| Writing | 2.3, 3.1, 4.1, 4.3, 6.1, 6.2 | • Completes workplace documentation accurately and in an appropriate format |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.3, 3.4, 4.1, 4.2, 4.3, 5.1, 5.2 | • Uses digitally based technologies and systems to design and create complex models and codes<br>• Identifies technical or conceptual issues and applies analytical processes to resolve these issues<br>• Recognises opportunities to investigate potential new techniques to access data from various resources |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG403 Develop data-driven applications | ICAPRG403A Develop data-driven applications | Updated to meet Standards for Training Packages.<br><br>Minor change to PC 1.1 to align with AQF level. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG403 Develop data-driven applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select and code the data-access layer of multi-layer applications
- retrieve and update data from various data sources.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the features of object-oriented design and multi-layer applications
- outline relational database management systems
- describe object-oriented programming at an intermediate level
- outline the principles of a Structured Query Language (SQL).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development field of work and include access to:

- integrated development environment (IDE)
- data access application program interfaces (APIs)
- database management system software and files
- coding standard
- specific tools and licences, depending on particular data-access API
- different types of data-access methods including data retrieval and storage, back-end coding and disconnect data management


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- eXtensible markup language (XML) documents.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG404 Test applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to prepare test plans, write test procedures or scripts according to test plans, and maintain test plans and scripts.

It applies to individuals who may be responsible for test plan preparation, execution, maintenance, and reporting of tests; as well as defect management in the software development life cycle.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine testing need in development | 1.1 Identify testing role across software development life cycle<br>1.2 Identify testing types and testing tools<br>1.3 Recognise testing benefits, standard and terms |
| 2. Prepare test plan document | 2.1 Gather requirements to develop test plan<br>2.2 Analyse and identify test data using various test-case design techniques |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Define and design test cases |
| 3. Write and execute test procedures | 3.1 Choose and adopt a unit test framework<br>3.2 Design and implement algorithm in test procedures<br>3.3 Perform test executions |
| 4. Review test results | 4.1 Record test results<br>4.2 Analyse test results<br>4.3 Produce test progress reports<br>4.4 Manage defects |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.2, 4.2 | • Interprets technical documentation to determine requirements |
| Writing | 3.2, 4.1, 4.3 | • Completes workplace documentation accurately and in an appropriate format |
| Numeracy | 3.2 | • Creates and uses basic mathematical equations |
| Get the work done | 1.2, 2.1, 2.2, 2.3, 3.1, 3.3, 4.2, 4.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload to achieve outcomes<br>• Uses systematic, analytical processes, gathering relevant information, and identifying and evaluating options against agreed criteria when applying testing and debugging techniques<br>• Employs a range of sophisticated digital tools and techniques to meet desired outcomes |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG404 Test applications | ICAPRG404A Test applications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG404 Test applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- apply test case design techniques to develop a test plan, and to test cases that adequately cover specific test requirements
- design, implement and execute test procedures, or scripts, by using a unit test framework and an integrated development environment (IDE)
- create test progress reports based on recorded test results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the characteristics of programming languages
- explain input and output requirements
- outline the life cycle for software development
- outline the processes and techniques for testing small-size applications.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the software development environment
- specific test requirements, such as the test-plan document
- suitable code to be tested
- word-processing software.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG405 Automate processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to write scripts to automate solutions, by using basic scripting processes, and application-specific scripting options.

It applies to individuals who may work in information and communications technology (ICT) support roles and who are required to automate tasks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop algorithms to represent a solution to a given problem | 1.1 Develop an algorithm that is an exact and sufficient description of the solution<br>1.2 Develop an algorithm that takes account of all possible situations<br>1.3 Develop an algorithm that is guaranteed to end |
| 2. Describe the structures of the algorithms | 2.1 Use structures, sequence, selection and iteration<br>2.2 Use structures to describe algorithmic solutions to a problem |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Design and write the script or code | 3.1 Create an abstract design, to fulfil the requirements of the proposed process<br>3.2 Review the abstract design for any omissions or errors<br>3.3 Translate the abstract design to the chosen language<br>3.4 Create the internal documentation |
| 4. Verify and review the script or code | 4.1 Check the script or code, for syntax and semantic errors<br>4.2 Identify any areas that are not covered, or are covered incorrectly, in the script or code |
| 5. Document the script or code | 5.1 Create technical-level documentation<br>5.2 Create user-level documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.2, 4.1, 4.2 | • Analyses complex technical documentation for any inconsistencies and errors |
| Writing | 3.1, 3.3, 3.4, 5.1, 5.2 | • Completes code and workplace documentation, using the vocabulary and form appropriate to the context and audience |
| Numeracy | 1.1, 1.2, 1.3, 2.1 | • Interprets, and manipulates, complex formulae and numerical information |
| Get the work done | 1.2, 2.2, 3.1, 3.2, 3.3, 4.2 | • Uses systematic analytical processes to review and identify coding errors<br>• Uses familiar digital technologies and systems to access information, search and enter data, code, and to present information and communicate with others, cognisant of data security and safety |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG405 Automate processes | ICAPRG405A Automate processes | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG405 Automate processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop an algorithmic statement of a solution, for a set process
- produce a functional script to automate a set process
- document this script for internal and external stakeholders.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain debugging for a variety of scripting scenarios
- describe the principles of algorithms, and their application, in computer programming
- describe scripting language syntax
- identify and describe scripting techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- applications capable of being scripted, or having their own scripting language
- templates for automating processes
- executable scripts for set repeat time slices, single runs or break-out loops
- debugging tools.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG406 Apply introductory object-oriented language skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the performance outcomes, skills and knowledge required to undertake introductory programming tasks using an object-oriented programming language, including tool usage, documentation, debugging, and testing techniques.

It applies to individuals who are programmers in a variety of fields and who are required to produce simple programs in object-oriented languages.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Apply basic language syntax and layout | 1.1 Apply basic language syntax rules and best practices<br>1.2 Select and use language data types, operators and expressions, in order to create clear and concise code<br>1.3 Use the appropriate language syntax for sequence, selection and iteration constructs<br>1.4 Use a modular programming approach within member or |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | function logic<br>1.5 Apply arrays, including arrays of objects to introductory programming tasks<br>1.6 Use standard-array processing algorithms<br>1.7 Use the facilities of the language to read and write data, from and to, text files, and record the outcomes |
| 2. Apply basic object-oriented principles in the target language | 2.1 Implement a class that contains primitive member or instance variables<br>2.2 Implement a class that contains multiple options for object construction<br>2.3 Implement a class that uses user-defined aggregation (object instance or member variables)<br>2.4 Use the facilities of the language to implement inheritance, to at least two levels<br>2.5 Use polymorphism at a simple level through inheritance, to enable the easy extension of the code |
| 3. Debug the code | 3.1 Use the language debugging facilities of an integrated development environment (IDE)<br>3.2 Interpret the compiler or interpreter messages to resolve syntax errors, and use debugging techniques to resolve logic errors |
| 4. Document the activities | 4.1 Follow organisational guidelines for developing maintainable code, and adhere to the provided coding standards, when documenting activities<br>4.2 Apply internal documentation to all the code created, and use the documentation tools available in the target language, when documenting activities |
| 5. Test the code | 5.1 Create and conduct simple tests, to confirm that the code meets the design specification<br>5.2 Document the tests performed and the results achieved |
| 6. Create an application | 6.1 Develop a solution, when provided with a basic object-oriented design document<br>6.2 Refer to the appropriate documentation for the language |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.2, 4.1, 5.1, 6.2 | • Evaluates, and integrates, information and ideas to construct meaning and selects, and applies, a range of reading strategies in relation to design specifications, coding standards, and coding- language documentation |
| Writing | 1.1-1.7, 4.1, 4.2, 5.2 | • Communicates relationships between ideas and information, in a style appropriate to the audience and purpose, and selects the vocabulary, grammatical structures and conventions appropriate to the text, in relation to coding, recording outcomes, and documenting activities |
| Numeracy | 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5 | • Selects from, and flexibly applies, mathematical and problem-solving strategies and techniques, in a programming context<br>• Uses formal written mathematical language and representation, in the context of programming |
| Navigate the world of work | 1.1, 4.1 | • Recognises and follows, explicit and implicit protocols, and meets expectations associated with own role, when developing code that is compliant with standards and organisational guidelines |
| Get the work done | 1.1, 1.2, 3.1, 3.2, 4.2, 5.1, 6.1 | • Uses a formal decision-making process, identifying and evaluating several choices against a limited set of criteria, when selecting language data types, operators and expressions<br>• Evaluates the effectiveness of decisions, in terms of how well they meet the stated design specifications<br>• Uses analytical processes to decide on a course of action, when translating requirements from the problem space to machine space, and when debugging<br>• Utilises a broad range of features within applications in order to develop software programs<br>• Recognises, and uses, a wide range of relevant language and symbols, when applying the coding syntax<br>• Actively identifies systems, devices and applications with the potential to meet current and/or future needs regarding programming |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG406 Apply introductory object-oriented language skills | ICAPRG406A Apply introductory object-oriented language skills | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG406 Apply introductory object-oriented language skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use an application program to design, and build, standard reusable software modules in response to a design specification
- generate the code, and the documentation
- undertake testing and debugging, to meet specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the processes and techniques related to object-oriented programming, including the concepts and language used
- describe the process for developing small-size applications
- identify and outline the key features of a graphical user interface (GUI), for interaction with an operator.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the software development environment
- software packages.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG407 Write script for software applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan, design and build scripts, using a scripting language to construct a highly interactive and automated software application.

It applies to individuals who build and integrate interactive applications, or websites for internal, and public, sites. They may work as application developers, application-support personnel, programmers specialising in a scripting language, web application programmers, or web developers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the requirements of building the script | 1.1 Identify the main characteristics of scripting languages<br>1.2 Identify and use a framework, and integrated development environment (IDE), to build the script using the chosen scripting language<br>1.3 Identify the protocols and the object model used in the chosen scripting language |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design the script | 2.1 Create pseudo code to describe the logic needed in the script<br>2.2 Review pseudo code for missing logic and error |
| 3. Write the script | 3.1 Translate pseudo code into scripts, incorporating the use of basic language elements<br>3.2 Create internal documentation in the script<br>3.3 Incorporate item manipulation using the chosen scripting language<br>3.4 Review, debug, and document the script |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.2, 3.4 | • Applies the appropriate strategies to construct meaning from the requirements and technical documentation<br>• Interprets and critically analyses, complex scripting language texts, and pseudo code when reviewing for missing logic, error and bugs |
| Writing | 2.1, 3.2, 3.4 | • Selects the vocabulary, grammatical structures and conventions appropriate to text, when documenting script and using pseudo code |
| Get the work done | 1.1-1.3, 2.1, 2.2, 3.1-3.4 | • Uses systematic, analytical processes, identifying and evaluating scripting language texts, and pseudo code, against the agreed criteria when reviewing for missing logic, error and bugs<br>• Considers the purpose, needs and limitations when selecting a framework and IDE to build script<br>• Recognises and uses a wide range of relevant language and symbols, when using pseudo code and scripting language, and when creating documentation |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG407 Write script for software applications | ICAPRG407A Write script for software applications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG407 Write script for software applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, write, and integrate scripts into software solutions to accommodate specified application requirements
- test and debug scripts, to ensure that the software meets the specification
- use a framework and an integrated development environment (IDE) in developing scripts.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the platforms suited to software development
- identify and summarise, copyright and intellectual property legislative requirements
- describe the life cycle of software development
- describe the processes and techniques related to the development of small-size applications.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- a brief for the development of a small-size application
- the runtime environment
- the development environment
- scripting language.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG409 Develop mobile applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop, debug, test, and deploy applications for hand-held devices, using development platform environments.

It applies to individuals who work as mobile device application developers. They may be programmers, game developers, designers, or testers who are working in the area of mobile applications development.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define a platform | 1.1 Determine the target platform for the hand-held device<br>1.2 Choose and evaluate a development environment, based on the target platform and hardware<br>1.3 Prepare and configure the application development environment |
| 2. Design the user | 2.1 Create views for different screen orientations and resolutions |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| interface for a mobile application | 2.2 Integrate the appropriate navigation techniques<br>2.3 Design the page layout and content<br>2.4 Integrate the appropriate user input techniques |
| 3. Permit the personalisation of parameters | 3.1 Write the code to allow users to configure application settings<br>3.2 Write the code to allow users to configure application output, such as text size, brightness, and sound effects |
| 4. Build a user interface for a mobile application | 4.1 Itemise the required functionality<br>4.2 Build a user interface, in the determined development environment to fulfil this functionality |
| 5. Connect to the data sources | 5.1 Bind controls to data sources<br>5.2 Persist data using extensible markup language (XML) serialisation<br>5.3 Access remote data using XML web services |
| 6. Test and debug a mobile device application | 6.1 Test the application for overall functionality, according to the requirements<br>6.2 Iterate the application design, or build, until the test results meet the requirements |
| 7. Deploy a mobile device application | 7.1 Create an application packaging for deployment<br>7.2 Deploy an application to target devices |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2 | • Interprets, and critically analyses, complex texts when choosing and evaluating a development environment |
| Writing | 2.3 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose and audience, when designing the content<br>• Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and conventions appropriate to text, when designing content |


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| | | |
|---|---|---|
| Numeracy | 2.3 | • Extracts and evaluates the mathematical information embedded in a range of tasks and texts, when designing layout<br>• Selects from, and applies, an expanding range of mathematical and problem-solving strategies, when designing layout |
| Get the work done | 1.1, 1.2, 1.3, 2.1-2.4, 3.1, 3.2, 4.1, 4.2, 5.1-5.3, 6.1, 6.2, 7.1, 7.2 | • Uses systematic, analytical processes, setting goals, gathering relevant information and identifying, and evaluating, options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Identifies concepts, principles and features of approaches in use in other contexts, and redesigns these to suit own situation<br>• Understands, and explicitly applies, some basic principles of analytical and lateral thinking<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG409 Develop mobile applications | ICAPRG409A Develop mobile applications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG409 Develop mobile applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the relevant mobile platform
- determine, prepare and configure a development environment
- design and build an application for the platform
- test and debug the application, to ensure that it meets requirements

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the considerations of mobile device hardware and networking, when programming
- summarise the principles of object-oriented programming
- describe user-interface design principles
- describe extensible markup language (XML) programming and web services
- explain the language integration for web design including:
  - hypertext markup language (HTML)
  - JavaScript
  - cascading style sheet (CSS)
  - Asynchronous JavaScript and XML (AJAX)
- identify and describe contemporary mobile platforms including:
  - mobile phones
  - pocket and tablet personal computers
  - digital assistants.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- mobile devices or simulators
- an integrated development environment (IDE)
- the internet, and web services
- the server system, with sufficient privileges to deploy applications
- specific tools and licences for platform.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG410 Build a user interface

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, build, and test a user interface (UI) to specification, including command-line interfaces (CLI), graphical user interfaces (GUI), web user interfaces (WUI) and natural user interfaces (NUI).

It applies to individuals who work as user-interface designers, and are responsible for specifying the layout and style of the desired user interface. They may be developers working in the area of user interface design and implementation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Build a prototype user interface (UI) | 1.1 Gather the requirements for the UI<br>1.2 Determine the application development language for writing the UI<br>1.3 Build a prototype, using the prototyping tools available in the determined language |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Review the UI prototype with the client, and edit as required |
| 2. Design the UI | 2.1 Formulate the application content flow<br>2.2 Design the UI components<br>2.3 Define UI actions<br>2.4 Itemise UI events |
| 3. Build the UI | 3.1 Determine the appropriate language<br>3.2 Build the UI with the required functionality |
| 4. Test the UI | 4.1 Test the UI for overall functionality, according to requirements<br>4.2 Iterate the UI design, or build, until the test results meet requirements |
| 5. Document the UI and obtain client sign-off | 5.1 Document the user requirements<br>5.2 Document the UI<br>5.3 Obtain client sign-off to the completed UI |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.2 | • Applies appropriate strategies in order to construct meaning from complex texts, when reading technical data |
| Writing | 5.1-5.3 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text |
| Numeracy | 2.2 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies |
| Navigate the world of work | 5.1-5.3 | • Recognises and follows explicit, and implicit, protocols, and meets expectations associated with own role when documenting user requirements, and gaining sign-off |
| Interact with others | 1.4 | • Participates in complex formal and informal conversations relevant to own role, initiating and taking the lead where appropriate |


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| | | |
|---|---|---|
| Get the work done | 1.1-1.4, 2.1-2.4, 3.1, 3.1, 4.1, 4.2 | • Uses a combination of formal, logical planning processes, and an increasingly intuitive understanding of context, to identify relevant information and risks, identify and evaluate alternative strategies, and resources, when gathering requirements<br>• Uses systematic, analytical processes, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Actively identifies systems, devices and applications with the potential to meet current and/or future needs<br>• Utilises a broad range of features within applications to improve personal productivity, optimising software functions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG410 Build a user interface | ICAPRG410A Build a user interface | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG410 Build a user interface

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design a fully functional user interface (UI) in consultation with the user, using the determined language
- create a prototype UI
- review the prototype with the user
- build the UI
- test that the UI is complete, consistent and functional
- document the user requirements, UI and client sign-off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- apply a range of basic mathematical strategies
- use object-oriented programming
- use open-source development tools
- describe the process of small-size application development.

## Assessment Conditions

conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the internet, to use the online tools available for prototyping and UI design
- an integrated development environment (IDE) for the determined language
- specific tools and licenses available, depending on the particular platform including:


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- Windows
- Linux
- Unix
- Mac
- Google Chrome.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG412 Configure and maintain databases

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install a database, manage data, data access and data security, and improve database performance.

It applies to individuals responsible for the maintenance and coordination of database operations. They usually work in an organisation, providing daily services as database administrators, database developers, database coordinators, or application developers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the requirements of database administration | 1.1 Identify the components of a database instance<br>1.2 Define and use tools to administer the database |
| 2. Install and configure the database system | 2.1 Verify the database software installation prerequisites<br>2.2 Install the database software and related services<br>2.3 Configure database instance, components and services |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.4 Perform data management tasks |
| 3. Manage database security and integrity | 3.1 Create and administer users<br>3.2 Create and manage the permissions to perform database operations<br>3.3 Create and manage roles |
| 4. Optimise and back up database | 4.1 Configure the database for backup and recovery operations<br>4.2 Create and manage database backups<br>4.3 Restore and perform database recovery<br>4.4 Tune and perform database optimisation |
| 5. Document the database | 5.1 Document the maintenance and tuning work performed on the database<br>5.2 Document the users added to system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Applies appropriate strategies to construct meaning from technical specifications, when identifying the database components, and defining tools |
| Writing | 5.1, 5.2 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text |
| Interact with others | 2.1 | • Seeks clarification when meanings and intended actions are open to interpretation, when verifying prerequisites |
| Get the work done | 1.1, 1.2, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 4.4 | • Uses systematic analytical processes, gathering relevant information and identifying, and evaluating, options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools, and applies these when |


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| | | |
|---|---|---|
| | | troubleshooting database technology<br>• Utilises a broad range of features within database applications and tools, to improve personal productivity, optimising software functions for specific purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG412 Configure and maintain databases | ICAPRG412A Configure and maintain databases | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG412 Configure and maintain databases

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install and configure database software, according to requirements
- manage database files, integrity, users and security
- create backup and restore databases
- monitor database performance
- document the database work, and database users added.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of database design
- summarise the features of desktop operating systems
- explain the principles of relational databases
- describe the functions of computer hardware and components
- explain computer networking and components
- explain uses of structured query language (SQL).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the database-management system software


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- specific requirements, including client and functionality requirements
- naming standard.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG413 Use a library or pre-existing components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify, evaluate and incorporate pre-existing (re-use) components from a library, or other source, as part of a software project.

It applies to individuals working in a programming role in a variety of information technology areas, who are required to use programming libraries to support their work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify potential re-use units | 1.1 Analyse the project design and functionality, to identify re-use components<br>1.2 Source re-use components with the desired functionality |
| 2. Evaluate re-use components for suitability in parent project | 2.1 Evaluate the re-use component, or libraries, for suitability for use within the parent software project<br>2.2 Compare the functionality of each potential re-use component to the functionality required by the parent project |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Evaluate the cost of implementing the re-use component<br>2.4 Consider the technical impact on the parent project design<br>2.5 Consider re-use component vendor licensing issues<br>2.6 Finalise the selection of re-use components<br>2.7 Document selection, evaluation and decision processes, as part of the parent project design documentation |
| 3. Incorporate the re-use components | 3.1 Configure the development environment to include re-use components during the build process<br>3.2 Construct test programs or use provided example programs, to become familiar with re-use components, in preparation for incorporation into the parent project<br>3.3 Add re-use components to the parent project incrementally<br>3.4 Resolve re-use component dependencies<br>3.5 Assemble and test the parent project, with a focus on the functionality provided by the re-use components |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 2.7 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure, and the conventions appropriate to text when preparing documentation |
| Numeracy | 2.3 | • Selects from, and applies, an expanding range of mathematics and problem-solving, when evaluating costs |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5 | • Uses systematic analytical processes in complex non-routine situations, setting goals, gathering relevant information and identifying, and evaluating, options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Utilises a broad range of features within applications to improve personal productivity, optimising software functions |


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| | | |
|---|---|---|
| | | • Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools, and applies these to troubleshoot technology |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG413 Use a library or pre-existing components | ICAPRG413A Use a library or pre-existing components | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG413 Use a library or pre-existing components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify, evaluate, and select the appropriate components that may be re-used
- modify and integrate the re-used components into a project
- document the selection and evaluation processes
- test the functionality of the re-used components.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- define and prepare the contract's specifications
- outline, and apply, current industry development and design methodologies
- describe domain modelling
- recognise and apply generic specification
- define the content and structure of libraries
- select and apply the techniques for metrics collection
- recognise patterns, frameworks and idioms
- identify and apply repository tools.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:


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- the software development environment
- a reuse library
- the technical requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG414 Apply introductory programming skills in another language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to carry out programming activities using a procedural approach.

It applies to individuals working in programming, development and technical roles. They may work as programmers, software developers or may be IT staff with responsibility for conducting programming activities, including writing, maintaining and updating programs, defining data and file handling.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Apply basic language syntax and layout | 1.1 Apply basic language syntax rules<br>1.2 Use language data types, operators and expressions to create clear and concise code<br>1.3 Use appropriate language syntax for sequence, selection and iteration constructs |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Code using data structures | 2.1 Use data structures<br>2.2 Write code to create and manipulate arrays<br>2.3 Design, define and use data structures |
| 3. Code using standard algorithms | 3.1 Create sequential search, binary search, insertion and deletion algorithms to operate on arrays<br>3.2 Code standard sequential access algorithms and random access algorithms |
| 4. Debug code | 4.1 Use stand-alone debugging tools or tools provided by integrated development environment (IDE) to debug code<br>4.2 Use a debugger to trace code execution and examine variable contents to detect and correct errors |
| 5. Document activities | 5.1 Follow organisational guidelines for developing maintainable code and adhere to provided coding standard when documenting activities<br>5.2 Apply internal documentation, suitable for use by peers, to all code created and use documentation tools available in target language when documenting activities |
| 6. Test code | 6.1 Design and document tests<br>6.2 Capture and record test results |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 5.1 | • Interprets and critically analyses and applies appropriate strategies to construct meaning from complex texts |
| Writing | 5.2, 6.1, 6.2 | • Displays knowledge of structure and layout, employing broad vocabulary, grammatical structure and conventions appropriate to text |
| Navigate the world of work | 5.1, 5.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and industry standards |


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| | | |
|---|---|---|
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 4.1, 4.2, 5.1, 5.2, 6.1, 6.2 | • Automatically implements standard procedures for routine decisions when programming, according to guidelines and standards<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG414 Apply introductory programming skills in another language | ICAPRG414A Apply introductory programming skills in another language | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG414 Apply introductory programming skills in another language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- perform coding activities to create, maintain and update programs using basic language and layout
- write coding using data structures and standard algorithms, and following guidelines
- debug code
- generate design and code documentation
- test and confirm that the application meets program specifications
- record the test results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe and explain programming techniques
- describe documentation techniques
- give details of application development processes
- summarise testing techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development field of work and include access to:

- integrated development environment (IDE) for the determined language
- specific tools and licences, depending on particular platform and language.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG415 Apply skills in object-oriented design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to produce an object-oriented design from specifications, applying the cyclic process of iteration from identification of class, instance, role and type to the final object-oriented model of the application.

It applies to system designers who are required to design systems using an object-oriented method.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Derive high-level design from specification | 1.1 Develop static class diagram from given set of specifications<br>1.2 Develop either collaboration diagram or sequence diagram from given set of specifications<br>1.3 Develop either activity diagram or state diagram from given set of specifications |
| 2. Refine design | 2.1 Investigate and refine behaviour, state of classes and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | collaboration between classes<br>2.2 Validate correct visibility of class services and state data<br>2.3 Identify generalisations within classes<br>2.4 Identify specialisations within classes<br>2.5 Apply principles of aggregation and composition to refine class design |
| 3. Document design | 3.1 Create detailed uniform modelling language (UML) static class diagrams<br>3.2 Create detailed UML collaboration or sequence diagrams<br>3.3 Create detailed UML activity or state diagrams |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3 | • Interprets and critically analyses and applies appropriate strategies to construct meaning from specifications |
| Writing | 1.1-1.3, 3.1-3.3 | • Communicates complex relationships between ideas and information, matching style of writing and diagrams to purpose and audience |
| Get the work done | 1.1, 1.2, 1.3, 2.1-2.5, 3.1-3.3 | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria when refining the design<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG415 Apply skills in object-oriented design | ICAPRG415A Apply skills in object-oriented design | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG415 Apply skills in object-oriented design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce an object-oriented design from requirements, documents or system specifications, including:
  - static class diagrams
  - collaboration or sequence diagrams
  - activity or state diagrams
- refine the design
- document the design.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain design quality metrics such as coupling and cohesion
- explain design refinement techniques
- describe programming design principles
- describe different programming methodologies
- outline various developmental life cycle options.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development field of work and include access to:

- system specifications
- requirement documents


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- design specifications
- detailed design.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG416 Manage a software component re-use library

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to store, document and maintain information and communications technology (ICT) components for reuse.

It applies to individuals in a software development area who are required to manage a library that contains reusable code.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Specify the components for re-use library | 1.1 Determine component suitability for reuse by checking its quality, and uses<br>1.2 Review the size and complexity of re-use components for generalisation, and remove project-specific refinements<br>1.3 Evaluate the components, including patterns, clusters and frameworks, and break them down into smaller components for greater flexibility or use<br>1.4 Review the components for duplication, and remove the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | duplicates |
| 2. Document the re-use library | 2.1 Document the components internally and externally, to ensure efficient retrieval<br>2.2 Document public constants, data structures, component interfaces and limitations<br>2.3 Document the possible relationships between data structures or objects<br>2.4 Provide an example code, demonstrating the use of components within the documentation<br>2.5 Document the development environment configuration<br>2.6 Provide simple test programs to prove the functionality of the library |
| 3. Set up the library structure | 3.1 Classify data structures or objects in a consistent and logical manner<br>3.2 Ensure that the library has a logical structure so that the user is aware of the library contents, and can understand the logic of how the functionality may be used by another developer<br>3.3 Develop the structure in such a manner that it avoids redundancy within the library<br>3.4 Configure the development environment to automate the build of re-use components, and the library<br>3.5 Take action to ensure that interfaces to the library components are consistent and abstracted<br>3.6 Add, update, and remove re-use components, as development is undertaken |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 3.2 | • Critically analyses documentation from a variety of sources and records, and consolidates information |
| Writing | 2.1-2.6, 3.3, 3.4, 3.6 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose |


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| | | |
|---|---|---|
| | | and audience<br>• Displays a knowledge of structure and layout, employing appropriate vocabulary, grammatical structure and conventions |
| Get the work done | 1.1-1.4, 3.1-3.6 | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication in producing a logical structure for the component library<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying, and evaluating, options against the agreed criteria when determining the suitability of components<br>• Applies formal problem-solving processes when tackling an unfamiliar problem, breaking complex issues into manageable parts, and identifying, and evaluating, several options for action<br>• Uses a systematic process to identify possible solutions to a difficult problem<br>• Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG416 Manage a software component re-use library | ICAPRG416A Manage a software component re-use library | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG416 Manage a software component re-use library

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- manage a software component re-use library
- specify the re-use library components
- document the re-use library components
- ensure logical structuring and interface facilitate retrieval and use.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain abstraction of code module interfaces
- describe the features of component libraries
- explain the design paradigms
- describe patterns, frameworks and idioms
- describe the re-use components, and metrics
- describe the content and structure of re-use libraries.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the software development environment
- technical requirements.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG417 Apply mathematical techniques for software development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use basic mathematical methods and operations in standard computer notation, Boolean algebra, data types and computer storage.

It applies to individuals in software development roles who are required to use mathematical constructions in programming.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manipulate algebraic terms, leading to the solution of linear equations | 1.1 Position number types on the number line<br>1.2 Evaluate various numerical expressions involving integers, fractions and indices<br>1.3 Simplify various algebraic expressions involving integers, fractions and indices |
| 2. Construct | 2.1 Solve simple equations |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| mathematical formulas | 2.2 Convert formulas between standard algebraic form and computer form<br>2.3 Create several formulas in standard algebraic form and in computer form |
| 3. Simplify and evaluate Boolean expressions and formulas | 3.1 Simplify and evaluate several Boolean expressions<br>3.2 Complete truth tables based on simple Boolean expressions and logic<br>3.3 Simplify and evaluate several formulas |
| 4. Manipulate number and character representation systems | 4.1 Convert numbers between binary, decimal and hexadecimal number systems<br>4.2 Add, subtract and multiply numbers in binary<br>4.3 Determine binary memory storage of an integer and a character |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1, 2.2, 3.1, 3.3 | • Interprets, and critically analyses, information from a variety of sources and records |
| Numeracy | All | • Selects from, and flexibly applies, a wide range of highly developed mathematical and problem-solving strategies, and techniques, when solving equations, constructing mathematical formulas, simplifying and evaluating Boolean expressions and formulas, and manipulating number, and character, systems<br>• Uses a wide range of mainly formal and some informal, oral and written mathematical language, and representation, when solving equations, constructing mathematical formulas, simplifying and evaluating Boolean expressions and formulas, and manipulating number and character systems |
| Get the work done | 2.1, 2.2, 2.3, 3.1, 3.2, 3.3 | • Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options, when evaluating Boolean expressions and formulas<br>• Plans and sequences complex tasks, efficiently and |


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| | | |
|---|---|---|
| | | effectively |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG417 Apply mathematical techniques for software development | ICAPRG417A Apply mathematical techniques for software development | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG417 Apply mathematical techniques for software development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- solve and evaluate mathematical problems
- use mathematical formulae in standard and computer notation
- simplify and evaluate Boolean expressions and formulae
- manipulate binary, decimal and hexadecimal number systems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain Boolean algebra
- explain number types
- explain binary memory storage
- explain the application of mathematical terms and operations in computing
- explain the calculation tools available.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to the programming language.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG418 Apply intermediate programming skills in another language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to carry out intermediate programming activities using another programming language. The language may be an object-oriented language.

It applies to individuals who are programmers in a variety of fields and who are required to produce software programs.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Code using user-defined data structures | 1.1 Design, define and use data structures that are aggregate of other data types<br>1.2 Code using array of user-defined data types<br>1.3 Use facilities in language to create, manipulate and destroy dynamic variables such as arrays |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Code using standard algorithms | 2.1 Use modular programming approach to coding, including pass-by-reference parameter passing<br>2.2 Write code to create and manipulate 2-D array<br>2.3 Create and maintain sorted array and use language-provided facilities for sorting array of ordered elements<br>2.4 Code simple binary search technique for use with array of sorted data<br>2.5 Code binary file-handling solutions using random-access algorithms |
| 3. Debug code | 3.1 Use stand-alone debugging tools or tools provided by integrated development environment (IDE) to debug code<br>3.2 Use debugger to trace code execution and examine variable contents to detect and correct errors |
| 4. Document activities | 4.1 Follow organisational guidelines for developing maintainable code and adhere to provided coding standard when documenting activities<br>4.2 Apply internal documentation, suitable for use by peers, to all code created<br>4.3 Use documentation tools available in target language when documenting activities |
| 5. Test code | 5.1 Design and document tests<br>5.2 Undertake limited testing of produced code to ensure compliance with program specification<br>5.3 Capture and record test results |
| 6. Create application | 6.1 Build application in response to user requirement<br>6.2 Access multiple source-code files<br>6.3 Employ IDE project maintenance facilities or make files to automate program building<br>6.4 Develop program specification solution when provided with basic design document<br>6.5 Design algorithm and document, construct and test applications in response to problem description using target language<br>6.6 Document completed application |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.1, 3.2, 4.1, 6.1 | • Interprets and critically analyses and applies appropriate strategies to construct meaning from texts relating to organisational guidelines and coding standards |
| Writing | 1.2-1.3, 2.1-2.5, 4.1, 4.2, 4.3, 6.1, 6.6 | • Communicates complex relationships between ideas and information, matching style of writing to purpose and audience when documenting activities<br>• Displays knowledge of structure and layout, employing broad vocabulary, grammatical structure and conventions appropriate to text when documenting activities |
| Navigate the world of work | 4.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and industry standards |
| Get the work done | All | • Uses systematic, analytical processes, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options<br>• Uses a systematic process to identify possible solutions to a difficult problem<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG418 Apply intermediate programming skills in another | ICAPRG418A Apply intermediate programming skills in another | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| language | language | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG418 Apply intermediate programming skills in another language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design and build application programs in response to a user specification, including:
  - coding using user-defined data structures and standard algorithms
  - debugging and testing the code
  - producing technical documentation of activities and completed application.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe in detail:
  - dynamic variables
  - medium-size application development
  - standard array and file handling algorithms
  - user-defined data structures
- describe a limited range of development methodologies and their application
- outline the principles of language development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development field of work and include access to:

- software development environment


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- technical requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG419 Analyse software requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research and analyse client requirements, produce a range of options, and create a software-requirements document.

It applies to individuals in a range of work environments who are required to perform an analysis role in formulating software requirements. They may work as database or computer developers, business analysts, or project managers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather and confirm client requirements | 1.1 Confirm the requirements, and the scope, of the project with the client<br>1.2 Gather information regarding requirements via sources of information and business processes<br>1.3 Analyse client requirements, to determine the project scope and the problem context or opportunity faced by the business<br>1.4 Document the client requirements, project's scope, related |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | problems, and sources of information |
| 2. Analyse the functional and related non-functional requirements | 2.1 Map business processes using modelling tools such as unified modelling language (UML)<br>2.2 Determine the opportunities for business process efficiencies<br>2.3 Document functional, and related non-functional, processes |
| 3. Analyse the feasibility of a project | 3.1 Analyse the technical feasibility of the project<br>3.2 Analyse the operational feasibility of the project<br>3.3 Determine the budget and schedule feasibility of the project<br>3.4 Examine how the project will fit within the organisation |
| 4. Develop high-level system solutions | 4.1 Develop and document feasible solutions for client requirements<br>4.2 Explore and document the feasibility of each solution<br>4.3 Examine alternatives against project constraints<br>4.4 Document assumptions, dependencies and required resources<br>4.5 Produce a project risk analysis<br>4.6 Document future requirements |
| 5. Prepare and publish the software-requirements documentation | 5.1 Develop the software-requirements document<br>5.2 Submit the software-requirements report to the appropriate person for project approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3 | • Interprets, and critically analyses, and applies the appropriate strategies to construct meaning from complex texts, when gathering and analysing information to determine client requirements, and the project's scope |
| Writing | 1.4, 2.3, 4.1, 4.4, 4.6, 5.1 | • Communicates complex relationships between ideas and information, matching the style of writing to the |


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| | | |
|---|---|---|
| | | purpose and audience, and displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure, and the conventions appropriate to text |
| Oral communication | 1.1 | • Demonstrates flexibility in spoken texts by choosing the appropriate structures and strategies to extract main ideas from oral texts |
| Numeracy | 3.3 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies, when determining the project budget and schedule feasibility |
| Navigate the world of work | 5.2 | • Recognises and responds to both explicit, and implicit, protocols when submitting the report to the appropriate person for approval |
| Get the work done | 1.3, 1.4, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 4.2, 4.3, 4.5 | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Uses a systematic process to identify possible solutions to a difficult problem<br>• Uses familiar digital systems and tools to access, organise, analyse, and display information relevant to the software requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG419 Analyse software requirements | ICAPRG419A Analyse software requirements | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

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# Assessment Requirements for ICTPRG419 Analyse software requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- Analyse client requirements to create a software requirements document, including:
  - gathering, confirming and documenting client requirements
  - analysing functional and related non-functional requirements, and project feasibility
  - developing high-level system solutions
  - submitting documents for approval.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the client business domain
- describe content features, such as clarity and readability
- summarise the system's current functions
- explain document design and usability
- explain the functions and features, of templates and style guides
- summarise instructional design principles
- describe the role of stakeholders and the degree of stakeholder involvement
- explain two or more current industry systems development methodologies.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- documentation regarding client and functionality requirements
- word processing software
- modelling software currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG425 Use structured query language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use a structured query language (SQL) to define, create, and manipulate database structures, and the associated data in a relational database.

It applies to individuals in a wide variety of information and communications technology (ICT) roles, where relational databases and SQL are being used.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Write a simple SQL statement to retrieve and sort data | 1.1 Retrieve all the data from a single table<br>1.2 Retrieve data from specific columns in a single table<br>1.3 Use 'order by' to sort query output |
| 2. Write an SQL statement that selectively retrieves data | 2.1 Restrict the number of rows retrieved, by placing criteria in the 'where' clause<br>2.2 Restrict the number of rows retrieved, by placing specific |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | criteria in the select statement<br>2.3 Use comparison operators in the 'where' clause to compare numeric, character, string, date and time data<br>2.4 Use Boolean operators with the correct precedence<br>2.5 Use criteria in the 'where' clause, to check for a range of values, to select values from a list, and to check for values that match a pattern<br>2.6 Use SQL syntax to suppress duplicate values from query results<br>2.7 Take action to exclude null values from a query result |
| 3. Write SQL statements that use functions | 3.1 Use arithmetical operators with the correct precedence<br>3.2 Use string functions, and operators, to obtain the required query output<br>3.3 Use mathematical functions to obtain the required output<br>3.4 Use date functions to obtain the required output<br>3.5 Use SQL aggregate functions to obtain the required output |
| 4. Write SQL statements that use aggregation and filtering | 4.1 Use 'group by' to aggregate data by multiple columns<br>4.2 Sort aggregated data in the query output<br>4.3 Filter aggregated data using the 'having' clause |
| 5. Write SQL statements that retrieve data from multiple tables | 5.1 Employ the inner join syntax, to retrieve data from two or more tables<br>5.2 Use 'left outer', 'right outer' and 'full outer' syntax, to join tables in the select statement<br>5.3 Use correct syntax in the 'where' clause, to retrieve data from multiple tables<br>5.4 Write a union query that retrieves data from more than one table |
| 6. Write and execute SQL sub-queries | 6.1 Construct single and nested sub-queries<br>6.2 Construct sub-queries that return a single row and multiple rows<br>6.3 Use correlated sub-queries to retrieve required data<br>6.4 Write sub-queries that use aggregates |
| 7. Create and manipulate tables | 7.1 Identify the required columns, data types, keys, relationships, indexes and constraints |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 7.2 Use the relevant naming conventions for database elements<br>7.3 Create tables that implement the required elements<br>7.4 Manipulate tables to meet specific requirements |
| 8. Create and use views | 8.1 Create views that satisfy information requirements<br>8.2 Use check constraints in a view<br>8.3 Retrieve, insert, update, and delete data using a view<br>8.4 Drop a view from a database |
| 9. Create and use stored procedures | 9.1 Create and execute stored procedures that use SQL to retrieve, insert, or modify data, according to information requirements<br>9.2 Create and execute stored procedures, that use one or more parameters<br>9.3 Drop a stored procedure from the database<br>9.4 Create and test database triggers that automate data management, or perform specific required data-related functions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 7.1 | • Interprets and critically analyses complex texts<br>• Applies the appropriate strategies to construct meaning from complex texts |
| Writing | 2.3-2.7, 3.1-3.5, 4.1, 5.1-5.4, 6.1-6.4, 7.3, 7.4, 8.1, 8.3, 9.1, 9.2, 9.4 | • Prepares documentation that expresses ideas, explores complex issues, and is constructed logically, succinctly and accurately<br>• Writes and edits, computer code and technical data, ensuring the correct syntax and accuracy |
| Numeracy | 3.1, 3.3 | • Selects from, and flexibly applies, a wide range of highly developed mathematical and problem-solving strategies and techniques in an SQL context<br>• Uses a wide range of mainly formal, written mathematical language and representation, to communicate mathematically in an SQL context |


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| | | |
|---|---|---|
| Get the work done | All | • Sequences and schedules complex activities and monitors implementation, when analysing and organising data, according to requirements<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria, when evaluating business requirements in relation to the database design<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options, when problem-solving in relation to typical warnings and syntax errors<br>• Uses formal and informal processes to monitor implementation of solutions and reflect on outcomes when creating tables, views, and stored procedures<br>• Uses a systematic process to identify possible solutions to a difficult problem when writing SQL statements and sub-queries<br>• Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools, and applies these in relation to using SQL in a relational database |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG425 Use structured query language | ICAPRG425A Use structured query language | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG425 Use structured query language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- write a simple, structured query language (SQL) statement to retrieve and sort data
- write an SQL statement that selectively retrieves data
- write SQL statements that:
  - use functions and operators
  - use aggregation and filtering
  - retrieve data from multiple tables
  - write and execute SQL sub-queries
  - create and manipulate tables to meet specific requirements
  - create and use views that satisfy information requirements
  - create and use stored procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain client-server concepts
- explain data-integrity concepts
- describe data-modelling structures
- explain databases and database objects, including data types, data structures, identifiers and metadata
- summarise programming concepts
- give an overview of query design
- give an overview of relational database design
- describe the SQL client environment


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- describe the SQL server architecture.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development, and include access to:

- special purpose tools, equipment and materials
- industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG426 Prepare software development review

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish the standards associated with information technology and communications technology (ICT) technical requirements, in the context of quality assurance processes applicable to software development.

It applies to staff in the software development area who are required to ensure that the software development process incorporates quality considerations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review the software standards | 1.1 Ensure that stakeholders have an understanding of organisational requirements<br>1.2 Document the software standards, according to project standards |
| 2. Review the implementation standards | 2.1 Assign the software standards to functions, according to a detailed technical plan |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Take action to ensure that the communication and distribution strategies are clear, coherent, and meet the overall project plan requirements<br>2.3 Monitor and report on the implementation of standards against the acceptance criteria and detailed technical specifications |
| 3. Review the software metrics and milestones | 3.1 Define metrics related to the project milestones, timeframe, and cost considerations<br>3.2 Develop a schedule of quality reviews<br>3.3 Determine quality considerations by identifying in-process measurement points that relate to critical organisational requirements<br>3.4 Determine a method to benchmark and scale achievement against stated stakeholder requirements and cost considerations<br>3.5 Report metrics and milestones to stakeholders in a clear and coherent manner, and take action to ensure the written agreement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Interprets and critically analyses, and applies the appropriate strategies, to construct meaning from complex texts relating to organisational requirements and project standards |
| Writing | 1.2, 2.3, 3.5 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text, when documenting standards and reporting on implementation, metrics, and milestones |
| Numeracy | 3.1 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies, in the context of metrics and cost considerations |
| Interact with others | 1.1 | • Recognises the importance of taking audience, purpose and contextual factors into account, when making decisions about what to communicate, with whom, why and how, in relation to ensuring stakeholder |


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| | | |
|---|---|---|
| | | understanding of organisational requirements |
| Get the work done | 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 3.5 | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication in relation to quality reviews<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying, and evaluating, options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Uses familiar digital systems and tools to access, organise, analyse and display information relevant to own role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG426 Prepare software development review | ICAPRG426A Prepare software development review | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG426 Prepare software development review

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review the software standards, including:
  - ensuring that stakeholders have an understanding of organisational requirements
  - documenting software standards according to project standards
- review the implementation standards, including:
  - assigning software standards to functions, according to the technical plan
  - ensuring that communication and distribution strategies are clear, coherent, and meet requirements
  - monitoring and reporting on the implementation of standards
- review software metrics and milestones, including:
  - defining metrics
  - developing a schedule of quality reviews
  - determining quality considerations by identifying the in-process measurement points
  - determining a method to benchmark and scale achievement
  - reporting the metrics and milestones to stakeholders
  - ensuring the written agreement is met.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and explain current industry-accepted software configuration management processes
- identify and explain quality assurance practices and standards


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- explain software metrics development
- identify and describe the client business domain.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to the:

- technical specifications
- organisational standards, for documentation and version control
- project management process, and hierarchy
- organisational business processes
- software requirement specifications
- interface requirement specifications
- system requirements
- design specifications
- validated data
- project budget and timeframe.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG427 Use XML effectively

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create extensible markup language (XML) documents, web-service applications, and client applications to consume web services.

It applies to individuals who are web developers, web programmers or application programmers, who build Windows or web-based applications that access data in XML format, or who develop and consume web services.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Represent the structured data with XML | 1.1 Gather information by analysing data, documents, and problem domains<br>1.2 Write a well-formed XML document by incorporating the appropriate structure and syntax<br>1.3 Validate the XML document using validation tools |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Format the XML document using styling tools |
| 2. Access and manipulate the XML document | 2.1 Create a new XML document using an XML parser application programming interface (API)<br>2.2 Access and traverse elements, and attributes, using an XML parser API<br>2.3 Modify elements and attributes using an XML parser API<br>2.4 Delete elements and attributes using an XML parser API<br>2.5 Transform the XML document into a data object, using an XML parser API<br>2.6 Transform the data object into an XML document, using an XML parser API |
| 3. Create a service-oriented application using XML | 3.1 Define the web-services architecture and platform elements<br>3.2 Develop and deploy web-service applications using a language<br>3.3 Develop a client application to consume web service, using a language |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Interprets and critically analyses, and applies the appropriate strategies, to construct meaning when gathering information by analysing data, documents and problem domains |
| Writing | 1.2, 1.4, 2.1, 2.3, 2.5, 2.6 | • Prepares documentation expressing ideas, explores complex issues, and is constructed logically, succinctly and accurately<br>• Writes, and edits, computer code and technical data, ensuring the correct syntax and accuracy |
| Numeracy | 1.2 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies in a range of contexts, identifying the order and position of elements in a sequence, when using XML |


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| | | |
|---|---|---|
| Get the work done | All | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying, and evaluating, options against the agreed criteria<br>• Applies formal problem-solving processes when tackling an unfamiliar problem, breaking complex issues into manageable parts and identifying, and evaluating, several options for action<br>• Utilises a broad range of features within applications to improve personal productivity, and optimising software functions for specific purposes |

# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Structure must include: | • child element<br>• root element<br>• sub-child element. |
| Syntax must use rules relating to: | • case sensitivity<br>• closing tag<br>• entity reference<br>• proper nesting<br>• quoted attribute values<br>• single-root element. |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG427 Use XML effectively | ICAPRG427A Use XML effectively | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG427 Use XML effectively

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- gather relevant information and produce a well-formed, formatted and validated XML document
- use an XML parser to access, modify and transform the XML documentation
- create a service-oriented application using XML.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the hierarchy and tree structure
- explain the programming concept and language
- describe the main features and services of the world wide web (WWW)
- explain data modelling
- outline commonly used items in hypertext markup language (HTML)
- identify information system features
- identify source characteristics.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- tools to access and develop a data source, such as an integrated development environment (IDE), a text editor and a web browser
- specific requirements, including client and functionality requirements


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- a web server and software that hosts the services to deploy and test, the web-service application
- libraries to develop the web service and client applications.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG428 Use regular expressions in programming languages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use regular expressions (regex) for manipulating text and data.

It applies to individuals who are programmers and system administrators, and whose main responsibilities are to code complex text processing, such as search-and-replace tasks, validate inputs, and create regex-based queries.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Differentiate the use of regular expressions in programming languages | 1.1 Compare the regular expression features among the different languages and tools<br>1.2 Define the different regular expression engine types and how they work<br>1.3 Determine the programming language, and tools, for writing regular expressions |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Code using regular expressions | 2.1 Use regular expression characters, operators, anchors and quantifiers to match the patterns of text<br>2.2 Write regular expression patterns to search, and manipulate, text<br>2.3 Write code to split strings and collect matches<br>2.4 Validate user input using regular expressions |
| 3. Test regular expressions | 3.1 Use test tools to test and validate regular expressions<br>3.2 Capture results, and edit, as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Interprets and critically analyses complex texts, and applies appropriate strategies, to construct the meaning from complex texts, when comparing regex features in different languages and tools |
| Writing | 1.2, 2.1, 2.2, 2.3, 3.2 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose and audience<br>• Writes, and edits, computer code and technical data, ensuring the correct syntax and accuracy |
| Numeracy | 2.1, 2.2, 2.3, 2.4 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2 | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options when evaluating, and comparing, tools and languages, and when using and testing regex<br>• Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG428 Use regular expressions in programming languages | ICAPRG428A Use regular expressions in programming languages | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG428 Use regular expressions in programming languages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- compare regular expression (regex) languages, tools and engine types
- prepare and validate code using regex
- test and edit regex code.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe and explain the principles of:
  - coding
  - database systems
  - object-oriented programming
  - open-source development tools
  - small-size application development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the internet, in order to use the online tools available for regular expressions
- an integrated development environment (IDE)


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- specific tools and licences, depending on the particular platform.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG501 Apply advanced object-oriented language skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake advanced programming tasks using an object-oriented programming language.

It applies to individuals who are programmers producing complex object-oriented programming.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop client-server application | 1.1 Build and test object-oriented applications<br>1.2 Make use of features of language that enable inter-process communication through at least one mechanism<br>1.3 Make use of features of language that enable remote procedure calls (RPCs) using class based on multiple inheritances<br>1.4 Build programs using classes based on nested classes |
| 2. Develop graphical user | 2.1 Code to implement drag and drop |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| interface (GUI) | 2.2 Develop GUI help files<br>2.3 Code using 2-D graphics |
| 3. Build applications | 3.1 Code within existing architectural framework<br>3.2 Ensure code follows standards for object-oriented language<br>3.3 Develop application that includes data transfer between client and server<br>3.4 Review concept of design patterns used by architectural framework |
| 4. Debug code | 4.1 Use stand-alone debugging tools or tools provided by integrated development environment to examine running code<br>4.2 Detect logical and coding errors using debugger<br>4.3 Detect and correct errors by tracing code and examining variable content |
| 5. Test application | 5.1 Design and document tests to be performed<br>5.2 Undertake limited testing of produced code to ensure it complies with program specification<br>5.3 Document test results |
| 6. Document system | 6.1 Demonstrate adherence to guidelines for developing maintainable code and company or institutional coding standards<br>6.2 Create code using supplied design documents<br>6.3 Create and maintain program documentation<br>6.4 Ensure that user documentation in form of online help is built into applications |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.2, 6.1, 6.2 | • Interprets and critically analyses complex texts and applies appropriate strategies to construct meaning from complex standards and guidelines documents |


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| | | |
|---|---|---|
| Writing | 5.1, 6.1, 6.3 | • Displays knowledge of structure and layout, employing broad vocabulary, grammatical structure and conventions appropriate to text when creating program documentation and documenting tests and test results |
| Numeracy | 1.3, 1.4 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies |
| Get the work done | All | • Accepts responsibility for planning and sequencing complex tasks and workload, taking into account capabilities, efficiencies and effectiveness<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG501 Apply advanced object-oriented language skills | ICAPRG501A Apply advanced object-oriented language skills | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG501 Apply advanced object-oriented language skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop client-server applications using an object oriented language
- produce a graphical user interface (GUI)
- build, debug and test the applications
- produce documentation for the applications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the architecture of a framework for web-enabled application development
- summarise the techniques for implementing inter-process communication
- describe the process for the development of large-size application
- identify and outline testing techniques as applied to distributed application development
- identify and outline techniques for implementing third-party supplied code.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development field of work and include access to:

- database management system (DBMS)
- networked computers
- software-development environment


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- technical requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG502 Manage a project using software management tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use software management tools, to manage a project from initiation to completion.

It applies to individuals who work in a team, or who individually develop systems to specification, using software management tools to manage delivery within time and budget parameters.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Select the software management tools | 1.1 Determine the software development methodology to be used<br>1.2 Determine the project management software to be used<br>1.3 Determine the source-control system to manage the source code and to handle conflicts<br>1.4 Determine the collaboration software to be used |
| 2. Use the software | 2.1 Create a project plan, according to the software requirement |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| management tools | specifications<br>2.2 Define the source-control procedures<br>2.3 Create a collaboration environment |
| 3. Monitor the use of software management tools | 3.1 Monitor, and adjust, the project plan to maintain progress according to the project plan<br>3.2 Ensure that the code is correctly entered into the source-control system<br>3.3 Monitor the collaboration environment, and resolve issues where required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1 | • Interprets and critically analyses, and applies, the appropriate strategies to construct meaning from complex texts |
| Writing | 2.1, 3,1, 3.2 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure, and the conventions appropriate to text |
| Numeracy | 2.1 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies |
| Interact with others | 2.3, 3.3 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit the purpose and audience, and monitoring the impact when creating and resolving issues<br>• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and, on occasion, taking a leadership role |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication, in a collaborative project environment<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant |


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| | | |
|---|---|---|
| | | information and identifying, and evaluating, options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options and seeking input, and advice from others, before taking action when necessary<br>• Uses a range of digitally-based technology and applications to access and filter data, extract, organise, integrate, and share relevant information, in increasingly effective ways |

# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG502 Manage a project using software management tools | ICAPRG502A Manage a project using software management tools | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG502 Manage a project using software management tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use software management tools to manage the development of a system to specification
- select the software development methodology, project management software, source-control system, and collaboration software
- create, monitor and adjust a project plan, according to the requirement specifications
- define source-control procedures, and ensure the correct entries into the system
- create, monitor, and resolve issues in a collaborative environment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the basic principles of project management
- describe the key features of the software development life cycle (SDLC)
- describe the importance of software specifications
- identify the methods and importance of version control.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the internet
- project management software
- source-control software


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- specific tools and licences, depending on the particular platform.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG503 Debug and monitor applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to debug and monitor a software application.

It applies to individuals who work as developers, testers and support engineers, using logging and tracing techniques to identify software problems and to monitor systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Implement a framework for logging and error handling | 1.1 Determine the logging framework for writing text messages at a certain level or priority to log files, or for sending data to monitoring applications<br>1.2 Create a custom event log for an application<br>1.3 Analyse the logs to check the state of the running application |
| 2. Debug and trace an application | 2.1 Apply basic debugging techniques such as breakpoints, stepping through and over code, and stack trace |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Identify and use the tools to debug software applications<br>2.3 Write the code for debugging (print, assert and stop statements) |
| 3. Monitor the application's performance | 3.1 Identify and use profiling tools to verify the parts of the system that consume the most resources, such as random access memory (RAM), central processing unit (CPU) and time<br>3.2 Analyse performance issues, and apply any changes to improve the performance of the application |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 2.2, 2.3, 3.1 | • Interprets and critically analyses complex texts, and applies the appropriate strategies to construct meaning from complex texts |
| Writing | 1.2 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure, and the conventions appropriate to text when creating a custom event log |
| Numeracy | 1.3, 3.2 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies when analysing logs, and monitoring applications data |
| Get the work done | All | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Uses a systematic process to identify possible solutions to a difficult problem<br>• Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG503 Debug and monitor applications | ICAPRG503A Debug and monitor applications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG503 Debug and monitor applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use a logging framework to create an event log for an application
- use tools and techniques to trace and debug an application
- use profiling tools to collect data about an application's performance, identify and analyse identified issues and implement changes to improve performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide examples of common logging frameworks. logging and tracing tools, and profiling tools
- explain the functions of profiling tools, and logging and tracing tools
- explain the basic principles of:
  - computer hardware, networking and components
  - database-management systems
  - object-oriented programming
  - open-source development tools
- describe procedures for developing small-size applications
- outline the software development life cycle (SDLC).


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- sufficient privileges to use performance monitoring tools on client and server system
- specific debugging tools and licenses, depending on the particular platform.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG504 Deploy an application to a production environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the, skills and knowledge required to install, uninstall, and configure an application to a production environment.

It applies to individuals responsible for the software deployments of enterprise applications. They may work as application developers, administrators, release managers or deployment coordinators.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan a software installation | 1.1 Determine if a client system and a server system meet the requirements for installation<br>1.2 Determine an installation method<br>1.3 Review the security requirements<br>1.4 Prepare a software-installation plan |
| 2. Perform the software | 2.1 Create an install package for an application |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| installation | 2.2 Test the install package in a test environment<br>2.3 Deploy the install package to a production environment |
| 3. Plan and test an application removal | 3.1 Create an uninstall package for removal of installed components<br>3.2 Test the uninstall package in a test environment |
| 4. Perform the database installation | 4.1 Deploy a database from the development environment to the production environment<br>4.2 Specify the connection string to the database |
| 5. Manage an application configuration | 5.1 Configure the application to use parameters that are valid for the production environment<br>5.2 Use the configuration files to modify the deployment variables<br>5.3 Configure the security features in an application |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 5.3 | • Interprets, and critically analyses, complex texts and applies the appropriate strategies to construct meaning from complex texts |
| Writing | 1.4, 2.1, 3.1, 4.2, 5.1, 5.3 | • Displays a knowledge of structure and layout employing a broad vocabulary, grammatical structure, and the conventions appropriate to text<br>• Writes and edits computer code, and technical data, ensuring the correct syntax and accuracy |
| Navigate the world of work | 1.1, 1.3 | • Identifies and complies with organisational requirements relevant to deployment of applications |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options |


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| | | |
|---|---|---|
| | | against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG504 Deploy an application to a production environment | ICAPRG504A Deploy an application to a production environment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG504 Deploy an application to a production environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare plans for software installation taking into account data, resource and security requirements
- create application install and uninstall packages, and then test and troubleshoot any issues
- install a database to a production environment
- configure variables, parameters and security features for a production environment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the basic principles of database management systems
- outline the software development life cycle (SDLC)
- explain the coding used to create deployment applications
- explain the information and communications technology (ICT) hardware, software, security protocols and standards and organisational policies relevant to deployment of applications.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- sufficient privileges to install packages on client and server system
- database management system software


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- specific tools and licences, depending on the particular platform.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG505 Build advanced user interface

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, build and test an advanced user interface (UI), including interaction techniques, rich controls, improved client-side validation, customisation and personalisation, graphics and multimedia.

It applies to individuals who work as user-interface designers and who are responsible for managing, and implementing, complex UI design.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan the UI design | 1.1 Determine the appropriate client technology, development tools, and platform for writing the UI<br>1.2 Review the conceptual design with the client, and edit as required<br>1.3 Design the UI layout and structure |
| 2. Implement interaction | 2.1 Apply the interaction design patterns |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| techniques | 2.2 Implement client-side validation |
| 3. Implement a customisable and personalised UI | 3.1 Build a customisable UI, to allow users to select their own customised version of the underlying application<br>3.2 Build a personalised UI to improve user experience |
| 4. Implement the graphics and multimedia | 4.1 Create and display the graphics<br>4.2 Add the multimedia content to an application |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Interprets, and critically analyses, complex texts and applies the appropriate strategies to construct meaning from complex texts, when reading and interpreting technical information, and determining suitable technology and tools |
| Writing | 1.3, 2.1, 3.1, 3.2, 4.1, 4.2 | • Prepares documentation, expressing ideas and exploring complex issues, that is constructed logically, succinctly and accurately<br>• Writes and edits computer code, and technical data, ensuring the correct syntax and accuracy |
| Oral communication | 1.2 | • Demonstrates flexibility in spoken texts by choosing appropriate structures, and strategies, in a range of contexts, and applies appropriate strategies to extract the main ideas from oral texts, when communicating with the client about the conceptual design of UI |
| Numeracy | 1.3 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies in a range of contexts, when designing layout and structure |
| Get the work done | 1.1, 1.3, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2 | • Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools, and applies these when troubleshooting existing technology<br>• Seeks to understand the potential of new technology, in the context of implementing interaction, and customisable features, and graphics and multimedia, |


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| | | |
|---|---|---|
| | | into the UI |

# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG505 Build advanced user interface | ICAPRG505A Build advanced user interface | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG505 Build advanced user interface

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- apply advanced techniques in order to create a complex user interface (UI)
- determine the client's technology, development tools, and the UI platform
- plan the layout and structure
- review the conceptual design with the client
- implement interaction techniques, including interaction design patterns and client-side validation
- implement a customisable and personalised UI
- create and display the graphics
- add the multimedia.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the concepts of programming, including:
  - client-side programming
  - object-oriented programming
  - web design programming in hypertext markup language (HTML), cascading style sheet (CSS), and JavaScript
- describe the purpose of UI prototyping
- outline the documentation requirements for UI development.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- an integrated development environment (IDE)
- the client system, and the server system
- multimedia tools
- specific tools and licences, depending on the particular platform.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG506 Design application architecture

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design the structure of software or systems components, and how they interact.

It applies to individuals who may work as software architects, developers, designers, software engineers or programmers responsible for designing, and building, solution architecture.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather and confirm the architecture requirements | 1.1 Gather information regarding the architectural requirements<br>1.2 Establish and document the architectural requirements |
| 2. Design layered architecture | 2.1 Separate the areas of concern into logical layers<br>2.2 Determine cross-cutting concerns<br>2.3 Define the system into components<br>2.4 Identify the responsibilities of each component |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.5 Identify the interconnections between components |
| 3. Plan a strategy to re-use components | 3.1 Determine an appropriate strategy for communicating with external systems<br>3.2 Interact with existing legacy components |
| 4. Design for globalisation and localisation | 4.1 Determine culture specific information<br>4.2 Consider database design features<br>4.3 Select the appropriate user interface<br>4.4 Develop a software product for worldwide distribution<br>4.5 Develop a software product for a specific country |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.2, 2.3, 2.4, 2.5, 4.1 | • Interprets complex technical, and non-technical, information from a range of sources |
| Writing | 1.2 | • Prepares technical workplace documents that fulfil the expectations of different stakeholders |
| Communicate with others | 4.1, 4.2 | • Identifies, and explores, the differences between a diverse range of people and cultures in a programming context |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 4.2, 4.3, 4.4, 4.5 | • Takes responsibility for planning, sequencing, and prioritising tasks in order to achieve the required outcomes<br>• Uses a range of digital tools and sophisticated techniques, to meet the desired outcomes<br>• Identifies technical or conceptual issues, and applies analytical processes to resolve these issues<br>• Uses analytical and lateral thinking to review current practices, and to develop new or improved software or systems |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG506 Design application architecture | ICAPRG506A Design application architecture | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG506 Design application architecture

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design layered applications to increase application performance, scalability and re-usability
- create flexible and configurable applications, and adapt these to suit different locales
- adapt a software product to a particular language, and culture, of the target market.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of database design
- outline current software development methodologies
- explain object-oriented programming and its role in application architecture
- describe the software development life cycle.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- both functional and non-functional requirements
- the tools to design software architecture
- specific information for the target culture, or language
- the appropriate learning and assessment support, when required.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

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# ICTPRG507 Implement security for applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement security for software applications, including code access security, security access control, cryptographic and secure, input and output handling.

It applies to individuals who may be responsible for coding secure software applications and who may work as software developers, software engineers, system and security administrators, and testers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Implement policy-based code-access security in an application | 1.1 Identify the purpose of application security in software development<br>1.2 Configure the platform security configuration files using security configuration tools<br>1.3 Define a custom code access permission, to restrict access to protected resources or to run protected operations |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Implement security access control in an application | 2.1 Plan an authentication and authorisation strategy<br>2.2 Develop an appropriate authentication and authorisation strategy for an application |
| 3. Write code to encrypt and decrypt data for secure communication | 3.1 Analyse the standard cryptographic algorithms<br>3.2 Encrypt, and decrypt, data using standard cryptographic algorithms |
| 4. Protect an application against injections | 4.1 Plan secure input and output handling, to prevent vulnerabilities related to code injections<br>4.2 Use secure input and output handling |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1 | • Evaluates complex and varied information, and concepts, in software security |
| Writing | 1.2, 3.2, 4.2 | • Writes and edits computer code, and technical data, ensuring the correct syntax and accuracy |
| Get the work done | 1.2, 1.3, 2.1, 2.2, 3.2, 3.1, 4.1, 4.2 | • Takes responsibility for planning, sequencing and prioritising processes and tasks to achieve the required outcomes<br>• Applies systematic and analytical problem-solving processes, in order to develop appropriate security access control strategies<br>• Uses a range of digital tools and sophisticated techniques to meet desired outcomes<br>• Is acutely aware of the importance of data security and of monitoring, and controlling, access to digitally stored and transmitted information |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG507 Implement security for applications | ICAPRG507A Implement security for applications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG507 Implement security for applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the following must be provided:

- creating secure applications
- planning effective security strategies
- ensuring safe communications
- preventing security attacks.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

Evidence of the ability to:

- outline basic hardware, and networking
- outline basic programming algorithms
- explain object-oriented programming
- recognise the mathematics required for programming algorithms.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- security configuration tools
- the software development environment
- testing and debugging tools
- the network resources


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- the appropriate learning and assessment support, when required.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG508 Create mashups

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to combine content from more than one source into new integrated applications, and to create custom mashups.

It applies to individuals responsible for developing modern web application (Web 2.0) using the enabling technologies to create mashup applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Remix elements from multiple websites to create new mashups | 1.1 Analyse Web 2.0 concepts and the web as a platform<br>1.2 Search various application programming interface (API) providers, and the types of services available<br>1.3 Evaluate and select which APIs to use<br>1.4 Determine which programming language to use with the selected APIs |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Create mashups of several services |
| 2. Use mashup tools | 2.1 Search various mashup tools<br>2.2 Evaluate and select which tool to use<br>2.3 Create mashups using the selected tool |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.1, 2.2 | • Critically analyses documentation from a variety of sources and records, and consolidates the information to determine requirements |
| Writing | 1.5, 2.3 | • Writes and edits computer code, and technical data, ensuring the correct syntax and accuracy |
| Get the work done | 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3 | • Systematically gathers and analyses all relevant information and evaluates options, in order to make decisions about APIs<br>• Identifies technical or conceptual issues, and applies analytical processes, to resolve issues<br>• Uses a range of digital tools and sophisticated techniques, to meet the desired outcomes |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG508 Create mashups | ICAPRG508A Create mashups | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG508 Create mashups

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create programmable web applications that combine data and functionality from various sources, to create new services.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline hypertext markup language (HTML), cascading style sheet (CSS) and JavaScript
- outline server-side scripting language
- outline extensible markup language (XML), web services, Asynchronous JavaScript (AJAX), and metadata
- explain web design and development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the internet, in order to use mashup tools, and API providers
- Web 2.0 tools
- an integrated development environment (IDE)
- the appropriate learning and assessment support, when required.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG509 Build using rapid application development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to build using rapid application development (RAD) tools.

It applies to individuals who may work as programmers and who are required to develop new systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Construct an application using RAD | 1.1 Capture and record business rules, using a methodology well-suited for the chosen RAD and RAD techniques<br>1.2 Design an application with a focus on modularity and future extension<br>1.3 Develop the code by other RAD tools<br>1.4 Build and demonstrate the completed transaction to the user, for revision within the agreed terms of reference |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Take action to ensure that the design caters for continuous change, by involving the user in the iteration process<br>1.6 Provide quality assurance (QA) testing throughout the phase and provide feedback to the appropriate person<br>1.7 Use code optimisers and performance tools |
| 2. Prepare the handover stage | 2.1 Track the implemented modules, and follow up where necessary with the appropriate person<br>2.2 Review user and builds for each module in the deliverables as preparation for handover<br>2.3 Compare the specification and implementation schedules for each module, and confirm the functional requirements, according to the specifications<br>2.4 Document the completed work |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.2, 2.3 | • Interprets and analyses complex technical documents |
| Writing | 1.1, 1.2, 1.3, 2.4 | • Documents technical processes and completes workplace documents, in a style and form appropriate to the audience |
| Interacts with others | 1.4, 1.5, 1.6, 2.1 | • Liaises with users, and manages changes in design, by collaborating with different stakeholders in the development process |
| Get the work done | 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.3 | • Identifies technical, or conceptual issues, and applies analytical processes in order to resolve issues<br>• Uses a range of digital tools and sophisticated techniques, to meet the desired outcomes<br>• Takes responsibility for planning, sequencing and prioritising tasks, to achieve the required outcomes<br>• Uses analytical and lateral thinking to review practices and to suggest improvements |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG509 Build using rapid application development | ICAPRG509A Build using rapid application development | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG509 Build using rapid application development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design an application and develop high quality code, according to client specifications
- provide quality assurance testing and monitoring
- effectively demonstrate use of code optimisers using rapid application development (RAD) techniques
- accurately document completed work.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline industry-accepted prototyping tools
- describe quality assurance practices as they relate to RAD
- describe the impact that the client business domain will have on RAD in particular there effect on:
  - cost
  - quality
- outline the role of the stakeholder, and the involvement required in RAD
- describe three or more current industry development methodologies
- identify and apply three or more programming languages
- identify and apply the most appropriate RAD tool, taking into consideration the targeted platform or multi-platform options.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the computer-aided software engineering tools (CASE) repository, to facilitate the re-use of templates and components
- CASE tools
- a code generator
- detailed user requirements
- prototyping software
- the requirements document, including the model and scope
- the appropriate learning and assessment support, when required.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG510 Maintain custom software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to maintain software so that it continues to meet client user requirements.

It applies to individuals who may work as programmers who are required to maintain existing software.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the software fault to be corrected | 1.1 Collect and review the software fault details from sources<br>1.2 Obtain technical data to assist in identifying the problem<br>1.3 Clarify nature of the problem with appropriate person where necessary |
| 2. Identify and isolate the fault | 2.1 Review program documentation for specific modules in order to pinpoint problem areas<br>2.2 Review the source code for logic errors |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Read manuals, help files and 'read me files' to determine if there is a known fix<br>2.4 Undertake additional testing to identify or duplicate fault<br>2.5 Escalate the difficult faults that cannot be identified |
| 3. Design a fix for the fault | 3.1 Ensure that the requirements needed to fix the fault are understood by the client<br>3.2 Consider alternative options and choose the most effective solution<br>3.3 Consider the possible impact of the fix on other parts of the system<br>3.4 Document the changes according to the organisational guidelines |
| 4. Carry out the fix to the software | 4.1 Identify, and obtain, access to the appropriate software development tools, source code, and libraries<br>4.2 Construct the appropriate code to correct the fault, according to organisational and programming standards<br>4.3 Compile, or regenerate, the code for changed programs and the associated modules<br>4.4 Correct, and resubmit, the code until error free<br>4.5 Document the changes, according to organisational and programming standards |
| 5. Test the fix and associated system areas | 5.1 Check logic to ensure that it works with test data, corrects original fault, and does not cause problems elsewhere<br>5.2 Request users to perform acceptance testing and record outcomes |
| 6. Hand over to systems operations area | 6.1 Update the documentation to reflect all the changes made<br>6.2 Confirm acceptance by systems operations and arrange for sign-off, according to procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 2.3 | • Analyses and interprets complex technical documents for specific information |
| Writing | 3.4, 4.5, 5.2, 6.1 | • Completes workplace documentation using a tone and format appropriate to the end audience |
| Oral communication | 1.3 | • Articulates issues in a clear and succinct manner using language appropriate to the audience |
| Navigate the world of work | 4.2, 4.5, 6.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and standards |
| Interact with others | 1.3, 2.5, 3.1, 5.2, 6.2 | • Liaises with various stakeholders and negotiates mutually agreeable outcomes |
| Get the work done | 2.4, 3.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.2 | • Identifies technical or conceptual issues, and applies analytical processes to resolve issues, with consideration of the possible impacts of various solutions<br>• Uses a range of digital tools and sophisticated techniques to meet the desired outcomes<br>• Takes responsibility for planning, sequencing and prioritising tasks to achieve deadlines |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG510 Maintain custom software | ICAPRG510A Maintain custom software | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG510 Maintain custom software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- effectively maintain custom software
- apply a fix that works
- deploy a possible range of solutions to produce the same results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the concepts relating to analysing a system performance compared with the system's current functionality
- describe the processes and procedures relating to testing software systems
- describe current industry-accepted hardware and software products, as they relate to system maintenance
- specify the programming code required for the project
- describe the program documentation required
- describe the impact of changes on applications and systems
- identify and summarise the programming standards relating to custom software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the fault logs, and help-desk reports


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- software development tools, documentation and environment
- source code and libraries
- the appropriate learning and assessment support.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG511 Monitor and support data conversion to new ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to monitor and support data conversion to a new information and communications technology (ICT) system.

It applies to individuals involved in the development process, who are required to convert data to work on new systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Monitor data conversion | 1.1 Obtain the conversion supporting documentation, and apply it to the conversion process<br>1.2 Protect production data, by taking action to ensure backup before the conversion<br>1.3 Determine the requirements of the client, and the impact on the business operation<br>1.4 Identify and confirm the software, hardware or environmental |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | prerequisites in the conversion plan<br>1.5 Validate data accuracy and integrity, according to conversion specifications<br>1.6 Identify data rejected by conversion tools, and carry out the actions detailed in the conversion plan<br>1.7 Document the data rejection or errant behaviour of the conversion process |
| 2. Support conversion | 2.1 Verify the results<br>2.2 Present results to the appropriate person and obtain sign-off<br>2.3 Maintain and document backup copies of the conversion files, according to requirements<br>2.4 Develop clear and coherent technical documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 1.5, 1.6, 2.1 | • Interprets, and critically analyses, complex texts and applies the appropriate strategies in order to construct meaning from the supporting documentation for conversion, and when identifying prerequisites in the plan |
| Writing | 1.3, 1.7, 2.3, 2.4 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text, when writing documentation, and when liaising with the client |
| Oral communication | 1.3 | • Demonstrates flexibility in spoken texts by choosing the appropriate structures and strategies, and applies these to extract the main ideas from oral texts when liaising with the client |
| Interact with others | 2.2 | • Selects, implements and seeks to improve protocols governing communications with clients and co-workers in a range of work contexts<br>• Collaborates with others, sharing information to build strong work groups |


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| | | |
|---|---|---|
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication when taking action to ensure backup before conversion<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria when validating data accuracy and integrity, and when verifying results<br>• Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, actively looking for early warning signs, and implementing contingency plans in relation to the data rejected by conversion tools<br>• Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and uses these to troubleshoot, and understand, the uses and potential of new technology, when monitoring and supporting data conversion to a new ICT system |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG511 Monitor and support data conversion to new ICT system | ICAPRG511A Monitor and support data conversion to new IT system | Updated to meet Standards for Training Packages.<br><br>Minor change to title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG511 Monitor and support data conversion to new ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- obtain and apply the conversion supporting documentation
- ensure backup before conversion
- determine client requirements, and the impact on the business operation
- identify and confirm the software, hardware or environmental prerequisites in the plan
- validate data accuracy and integrity, according to the specifications
- identify the data rejected by the conversion tools, and carry out actions specified in the plan
- document any data rejection or errant behaviour of the process
- verify the results, presenting them to the appropriate person and obtaining sign-off
- maintain and document backup copies of the conversion files, according to requirements
- develop clear and coherent technical documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe current data modelling methodologies
- explain current industry data conversion tools
- describe current industry-accepted hardware and software products, including their general features and capabilities
- explain data conversion from legacy systems.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to the:

- conversion specifications
- data conversion plan
- documentation guidelines
- sample data to be converted
- data conversion tools.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG512 Prepare for the build phase of an ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to prepare the development environment for the build phase, and coding, of an information and communications technology (ICT) system.

It applies to individuals in software development environments who are required to organise the documents, environments, and tools for the build phase of software development.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the best development platform for project | 1.1 Identify the requirements of the development platform, using the detailed technical specifications<br>1.2 Match the technical specification of the development platform, with the technical specification of the project and with the quality standards |
| 2. Identify the best development tools for | 2.1 Identify the functional requirements for development tools, using the detailed technical specifications and other program |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| project | documentation<br>2.2 Evaluate the development tools for a match with the requirements, and document the evaluation outcomes<br>2.3 Select the appropriate development tools |
| 3. Prepare the development environment | 3.1 Obtain the components for the development platform, development tools and the required hardware<br>3.2 Install, configure and test the development platform and tools<br>3.3 Document the configuration of the development platform |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 2.3 | • Interprets, and critically analyses, complex texts and applies the appropriate strategies, to construct meaning from complex documentation when selecting the platform and tools |
| Writing | 3.2, 3.3 | • Displays a knowledge of structure and layout employing a broad vocabulary, grammatical structure and the conventions appropriate to text, when developing documentation of platform configuration<br>• Writes, and edits, computer code and technical data ensuring the correct syntax and accuracy |
| Get the work done | 2.2, 2.3, 3.1, 3.2 | • Plans a range of routine, and some non-routine tasks, accepting stated goals and aiming to achieve them efficiently when obtaining components required for the development platform, development tools and the required hardware<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria, when selecting and testing the platform and tools<br>• Considers purpose, needs and limitations when selecting the development platform and tools<br>• Understands the key principles and concepts |


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| | | |
|---|---|---|
| | | underpinning the design, and operation, of digital systems and tools, and applies these in the context of installing, configuring, and testing the development platform and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG512 Prepare for the build phase of an ICT system | ICAPRG512A Prepare for the build phase of an IT system | Updated to meet Standards for Training Packages.<br><br>Minor change to title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG512 Prepare for the build phase of an ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the best development platform, according to the project's technical specifications and quality standards
- identify the best development tools, according to the functional requirements, and documenting selection and evaluation
- obtain components for the platform, tools and the required hardware
- install, configure and test the platform and tools
- document the configuration of the platform.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the client business domain
- explain current industry-accepted coding methods and standards in a recognised language, and in database management system (DBMS) modelling techniques
- outline the processes and techniques related to:
  - software and database design
  - architectures and their technical requirements
- describe the quality assurance practices required when building an information and communications technology (ICT) system.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to the:

- design specification
- software requirement specifications
- system requirements
- technical specifications
- version control standards.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG513 Coordinate the build phase of an ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to coordinate the day-to-day management activities during the build phase, and coding of, an information and communications (ICT) system, according to the design specifications and project plan.

It applies to individuals in the software development area who are required to synchronise the coding activities of a new system.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare the work | 1.1 Review the specifications and standards for the project<br>1.2 Review the project documentation for the development environment<br>1.3 Analyse, and confirm, that the development environment matches the project documentation and meets the standards<br>1.4 Select the development tools |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Coordinate the work | 2.1 Determine the work units based on the design<br>2.2 Delegate the work units to the appropriate developers<br>2.3 Brief the developers on standards, procedures, schedules and other requirements<br>2.4 Implement project management techniques to ensure that all tasks are completed on time, and according to standards, and the specification |
| 3. Coordinate the development environment | 3.1 Implement and test the changes to the development environment, and document the outcomes<br>3.2 Update the project documentation for the development environment |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Interprets, and critically analyses, complex texts and applies the appropriate strategies to construct meaning from specifications, standards and the development environment documentation |
| Writing | 2.3, 3.1, 3.2 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose and audience, and displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text |
| Oral communication | 2.3 | • Demonstrates flexibility in spoken texts by choosing the appropriate structures and strategies in a range of contexts |
| Interact with others | 2.2, 2.4 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction, and taking a leadership role on occasion, when implementing project management techniques |
| Get the work | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication |


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| | | |
|---|---|---|
| done | | • Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria, and implementing and testing changes<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG513 Coordinate the build phase of an ICT system | ICAPRG513A Coordinate the build phase of an IT system | Updated to meet Standards for Training Packages.<br><br>Minor change to title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG513 Coordinate the build phase of an ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and confirm that the development environment matches the project documentation, and meets standards
- select the development tools
- determine work units based on the design
- delegate work units to appropriate developers
- brief developers on standards, procedures, schedules and other requirements
- implement project management techniques to ensure that tasks are completed on time, and according to requirements
- implement and test changes to the development environment, and document the outcomes
- update the project documentation for the development environment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the client business domain, to inform the system build
- describe the client-server architecture
- describe the current industry-accepted coding in a recognised language, including features and capabilities
- summarise current industry-accepted database management system (DBMS) modelling techniques
- identify and describe current industry-accepted hardware, and software products, including their general features and capabilities
- describe the principles of contemporary databases development, and their application


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- describe the quality assurance practices required for the build phase of information and communications technology (ICT) systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to the:

- design specification
- software requirement specifications
- system requirements
- technical specifications
- version-control standards.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG514 Prepare for software development using rapid application development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to carry out rapid application development (RAD), in the context of preparing for software development. The selection and use of suitable RAD tools can have an impact on the cost and quality of a software project.

It applies to individuals who are programmers in a variety of information technology areas, who develop software using RAD.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine RAD requirements | 1.1 Select and use, the most suitable industry-standard tool set<br>1.2 Implement a prioritised plan using a series of recursive stages of build, and review for delivery of the system<br>1.3 Implement and incorporate a physical database<br>1.4 Identify, document, and schedule the modules to be |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | implemented by incremental development techniques<br>1.5 Identify and formally allocate responsibilities to the authorised user, and to suitably skilled builders, for each module<br>1.6 Plan for, and document, the endorsement of reviews, administration schedules and development milestones |
| 2. Determine the work metrics | 2.1 Set development goals<br>2.2 Seek and secure agreement on, and adherence to, a single common notation<br>2.3 Determine the tools, features and techniques most appropriate to the development environment<br>2.4 Facilitate, plan, develop, and document version and change-control methods<br>2.5 Facilitate training and exposure for the user participants via RAD |
| 3. Implement the administration method | 3.1 Determine and reach agreement of stakeholders on the specifications<br>3.2 Confirm the dates for milestones with stakeholders, and secure with written agreement<br>3.3 Inform the production system’s parties, and secure with written acknowledgment<br>3.4 Administer and maintain, time-recording and management methodologies |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Interprets, and critically analyses, complex texts and applies the appropriate strategies to construct meaning from complex technical documents |
| Writing | 1.4, 1.6, 2.4, 3.2, 3.3 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text, when developing documentation |


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| | | |
|---|---|---|
| Oral communication | 2.5, 3.1, 3.2, 3.3 | • Demonstrates flexibility in spoken texts by choosing the appropriate structures and strategies, and applies appropriate strategies to extract the main ideas from oral texts when liaising with stakeholders, facilitating training and informing parties on the administration method |
| Interact with others | 2.2, 2.5, 3.1, 3.3 | • Recognises and applies, the protocols governing what to communicate, with whom, and how, when liaising with stakeholders, facilitating training and informing parties on administration methods<br>• Recognises the importance of joint ownership of the process, and outcomes, and tries to identify common ground, shared goals, and agreement on the best course of action |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication, when implementing a prioritised plan and database, scheduling timelines, allocating responsibilities, and establishing goals and methods<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world, and uses these to troubleshoot and understand, the uses and potential of new technology |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG514 Prepare for software development using rapid application | ICAPRG514A Prepare for software development using rapid application | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| development | development | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG514 Prepare for software development using rapid application development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select, and use, a rapid application development (RAD) tool set
- implement a prioritised plan
- implement and incorporate a physical database
- identify, document and schedule the modules to be implemented
- identify and allocate responsibilities
- plan for and document the endorsement of reviews, administration schedules and milestones
- determine work metrics
- set the development goals
- seek and secure an agreement on, and adherence to, a single common notation
- determine the most appropriate tools, features and techniques
- facilitate, plan, develop and document version and change-control methods
- facilitate training and exposure for the user participants via RAD
- implement administration
- determine and secure the agreement of stakeholders
- confirm dates, and secure written agreement for the milestones
- inform the production-system parties and secure written acknowledgment
- administer and maintain, time-recording and management.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe commonly used and industry-accepted prototyping tools


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- describe the client business and the impact on the software application
- identify, and describe, the programming languages commonly used for application development
- outline the quality assurance practices required for software development
- outline the industry development methodologies used for software development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the computer-aided software engineering tools (CASE) repository, to facilitate the re-use of templates and components
- CASE tools
- detailed user requirements
- prototyping software
- the requirements document, including the model and scope.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG515 Review developed software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to review developed software in relation to quality standards. This involves reviewing quality standards, determining development quality issues, and closely reviewing specific quality areas.

It applies to individuals who are senior programmers who ensure the quality of software produced by others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review the quality standards | 1.1 Review the organisation's quality standards, and the standards related to software development, and prepare them for use<br>1.2 Contact the appropriate person to discuss their involvement in the review, and establish their role<br>1.3 Determine and document the approach to be used to validate quality during the review |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Determine development quality issues | 2.1 Examine and document processes that have a significant impact on the quality of a particular product under development<br>2.2 Hold discussions on quality issues with the development staff and establish agreed actions<br>2.3 Allocate responsibilities to the development staff<br>2.4 Obtain agreement from the appropriate person on the procedures to ensure quality of development, where necessary |
| 3. Review the specific quality areas | 3.1 Review plans to ensure that they are adequate to control the quality of the development process<br>3.2 Review testing processes, to ensure that defect-free software will be developed<br>3.3 Examine documentation and methods for development, to ensure that the software will be supportable<br>3.4 Monitor the requirements to ensure that client needs are met |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Interprets, and critically analyses, complex texts and applies appropriate strategies, to construct meaning from the organisation's quality standards and the standards related to software development |
| Writing | 1.3, 2.1 | • Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text, when documenting the validation approach, and the processes, that have an impact on quality |
| Oral communication | 1.1, 1.2 | • Demonstrates flexibility in spoken texts by choosing appropriate structures and strategies in a range of contexts, and applies appropriate strategies, to extract the main ideas from oral texts |
| Navigate the world of work | 2.4 | • Recognises and responds to both, explicit and implicit, protocols within familiar work contexts and appreciates the importance of identifying, and responding to, |


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| | | |
|---|---|---|
| | | protocols in new situations, in the context of gaining agreement on procedures |
| Interact with others | 2.2 | • Uses active listening, observational and questioning techniques in order to identify different perspectives, and confirm, clarify or revise understanding<br>• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction, and taking a leadership role on occasion |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options, and seeking input and advice from others, before taking action when necessary<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG515 Review developed software | ICAPRG515A Review developed software | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG515 Review developed software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review and discuss the organisation's quality standards relevant to software development
- determine and document quality standards and procedures that support the development of defect-free products to meet client requirements
- review plans, testing processes and documentation related to the quality of software development to ensure that client needs are met.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain
- summarise industry-accepted hardware and software products
- describe input and output drivers
- identify and describe operating systems
- identify and describe:
  - two or more procedural languages
  - three or more object-oriented languages
- describe quality assurance practices, and the identification of standards
- explain real-time programming techniques
- describe software application measuring and estimating methodologies
- describe software development and configuration management processes
- explain the process of software metrics development.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- data dictionaries
- design specifications
- a data stream management system (DSMS)
- a simulated scenario
- Australian and international software quality standards.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG516 Develop integration blueprint for ICT systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to document and to maintain the details of the technology, and architectural components, incorporated into the integration blueprint for an information and communications technology (ICT) system.

It applies to individuals in senior roles in the development environment, who are required to integrate a series of components.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review the technical architecture documents | 1.1 Review the technical architecture documents, supplemented with discussions where necessary<br>1.2 Identify, and evaluate, technical considerations that cover the overall requirements and provide the best technical fit against requirements<br>1.3 Update the integration blueprint according to best-fit technical specifications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Undertake compatibility tests | 2.1 Assemble components and component technologies, according to design specifications<br>2.2 Test the components for functionality, against design specifications<br>2.3 Identify non-compliance, against technical specifications<br>2.4 Update the integration blueprint to reflect functionality and non-compliance changes |
| 3. Assess the risk areas | 3.1 Identify the scope of the modifications required from the compatibility test<br>3.2 Negotiate the modifications required with the suppliers, based on the outcomes of the compatibility test<br>3.3 Update the integration blueprint to reflect modifications to risk areas |
| 4. Assess readiness for stress testing | 4.1 Continue integration activities until the platform is stable<br>4.2 Evaluate the platform's compliance with technical requirements<br>4.3 Update the integration blueprint for stress testing |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Interprets, and critically analyses, complex texts and applies appropriate strategies, to construct meaning from complex texts when reviewing technical architecture documents |
| Writing | 1.3, 2.4, 3.3, 4.3 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose and audience<br>• Displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text |
| Oral | 1.1, 3.2 | • Demonstrates flexibility in spoken texts by choosing appropriate structures and strategies |


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| | | |
|---|---|---|
| communication | | • Applies appropriate strategies to extract main ideas from oral texts when having discussions to supplement documentation and when negotiating modifications with suppliers |
| Interact with others | 3.2 | • Participates in complex formal and informal conversations relevant to own role, initiating and taking the lead where appropriate, in relation to negotiating with suppliers |
| Get the work done | All | • Uses a combination of formal, logical planning processes, and an increasingly intuitive understanding of context to identify relevant information and risks, and identify, and evaluate, alternative strategies and resources<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG516 Develop integration blueprint for ICT systems | ICAPRG516A Develop integration blueprint for IT systems | Updated to meet Standards for Training Packages.<br><br>Minor change to title. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG516 Develop integration blueprint for ICT systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review technical architecture documentation and update the integration blueprint
- undertake component compatibility testing and update the integration blueprint accordingly
- assess the risk of possible modifications and update the integration blueprint accordingly
- stabilise the platform, assess compliance with the technical requirements and update the integration blueprint.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the sources of technology suppliers and components
- outline contemporary industry development and design methodologies
- identify and describe, industry-accepted hardware and software products, features, and capabilities
- identify and describe, industry-accepted testing procedures
- describe the principles of stress load testing.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- design specifications


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- a high-level, diagrammatic view of the main system components.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG517 Install, test and evaluate pilot version of ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install a pilot version of a developed information and communications (ICT) system, and test it with a small group of users, in order to evaluate it against the agreed criteria.

It applies to individuals who are senior staff in a development area who are required to test and evaluate new systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for the pilot system | 1.1 Establish and confirm the objectives, success criteria and acceptance criteria, for pilot implementation<br>1.2 Identify and secure, the technical and organisational resources required for pilot implementation<br>1.3 Establish and confirm executive support for the pilot<br>1.4 Complete the project plan for the pilot, and refer the project |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | documentation to the appropriate person for their approval |
| 2. Install the pilot system | 2.1 Install and configure pilot according to the project plan<br>2.2 Verify and record the technical readiness of the pilot<br>2.3 Take the necessary actions to determine accuracy of the data<br>2.4 Prepare a status report, and submit to the appropriate person for their sign-off |
| 3. Test the pilot system | 3.1 Work with stakeholders to identify and release the appropriate pilot group<br>3.2 Brief the pilot-team members on the objectives of the test<br>3.3 Train the pilot-team members in the new system<br>3.4 Run the test |
| 4. Evaluate the results and feedback of the pilot | 4.1 Assess computerised results of the pilot test<br>4.2 Interview pilot group members in order to obtain feedback<br>4.3 Document the feedback and results<br>4.4 Evaluate according to success, and the acceptance criteria previously established<br>4.5 Report the final recommendations from the pilot, with regard to a complete installation of the pilot system, to the appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Interprets, and critically analyses, complex texts and applies appropriate strategies, to construct meaning from complex texts |
| Writing | 1.4, 2.2, 2.4, 4.3, 4.5 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose and audience and displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure and the conventions appropriate to text |


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| | | |
|---|---|---|
| Oral communication | 3.1, 3.2, 3.3, 4.2, 4.5 | • Demonstrates flexibility in spoken texts by choosing appropriate structures and strategies, and applies appropriate strategies, in order to extract the main ideas from oral texts |
| Numeracy | 1.4 | • Selects from, and applies, an expanding range of mathematical and problem-solving strategies in a range of contexts |
| Navigate the world of work | 1.4, 2.4 | • Recognises and follows, explicit and implicit, protocols, and meets expectations associated with own role |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating, options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options, and seeking input and advice from others, before taking action when necessary<br>• Understands the key principles and concepts, underpinning the design and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG517 Install, test and evaluate pilot version of ICT system | ICAPRG517A Install, test and evaluate pilot version of IT system | Updated to meet Standards for Training Packages<br><br>Minor change to title | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG517 Install, test and evaluate pilot version of ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish objectives, acceptance criteria and resource requirements for implementation of a pilot system
- prepare a project plan for a pilot system, according to organisational requirements
- install and verify a pilot system
- test a pilot system with the pilot team
- evaluate the results and feedback on a pilot
- report on the outcomes of a pilot system.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the role of stakeholders, and the degree of stakeholder involvement in the development of a pilot system
- explain three or more current industry information-gathering methodologies
- describe current industry system development and design methodologies
- describe current industry-accepted hardware and software products, providing an overview of general features and capabilities, and in-depth details of installing pilot systems
- describe the general features and capabilities of current industry-accepted system piloting methodologies
- outline quality assurance practices with regard to installing, testing and evaluating a system.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to the:

- pilot system
- planning documentation, including acceptance criteria
- technical materials
- interaction with others involved in the pilot.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG518 Monitor the system pilot

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to monitor the implementation of a system pilot, and to evaluate its performance through testing and review.

It applies to individuals who are senior programmers and systems analysts who implement systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Monitor the implementation of the pilot system | 1.1 Review the pilot and the support documentation<br>1.2 Identify the pilot and system procedures<br>1.3 Supervise system functionality and integrity tests<br>1.4 Document the findings<br>1.5 Provide technical support, as required |
| 2. Evaluate the pilot | 2.1 Review pilot operation against pilot objectives, and success |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| system | criteria<br>2.2 Review client and executive feedback on the pilot, against the acceptance criteria<br>2.3 Identify and areas of success, and those needing improvement<br>2.4 Prioritise, implement and assess, the impact of required improvements<br>2.5 Document the review process and submit to the appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Interprets and critically analyses complex texts |
| Writing | 1.4, 2.5 | • Produces texts using required structure, layout and conventions |
| Navigate the world of work | 1.2 | • Identifies and follows relevant organisational policies and procedures |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Takes responsibility for decisions about when, and how, to complete tasks and coordinate with others<br>• Reflects on outcomes and feedback from others in order to identify general principles and concepts that may be applicable in new situations<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options, and seeking input and advice from others before taking action, when necessary<br>• Understands the key principles and concepts, underpinning the design and operation of digital systems and tools |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG518 Monitor the system pilot | ICAPRG518A Monitor the system pilot | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG518 Monitor the system pilot

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review documentation to identify pilot objectives, client requirements and relevant procedures
- observe and support testing and document findings
- evaluate the pilot's success using acceptance criteria and stakeholder feedback
- document the evaluation process, including successes, improvements and impact of changes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the current industry-accepted system of piloting methodologies including their general features and capabilities, with particular emphasis on acceptance criteria
- describe current industry system development and design methodologies
- explain three or more current industry information-gathering methodologies
- outline the role of stakeholders and the degree of stakeholder involvement
- describe the system's current functionality, with a specific emphasis on:
  - system integration
  - system response and recovery times
  - user interfaces
  - the validation of inputs and outputs.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to the:

- pilot plan
- acceptance criteria
- system to be piloted.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG520 Validate an application design against specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to check a software application design against the specifications, and to apply validation techniques across the system's life cycle.

It applies to individuals employed in the area of software development who are responsible for verifying and validating software design specifications. They may be software project managers, testers, software engineers, system analysts or software developers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate the software requirement specifications | 1.1 Review the software requirement specifications document prior to design, to ensure that it is complete and correct<br>1.2 Validate the software requirement specifications document |
| 2. Create a proof of concept prototype | 2.1 Use rapid application development tools (RAD) to create a prototype system<br>2.2 Present the prototype system for demonstration to the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | appropriate person<br>2.3 Validate the proof of concept |
| 3. Evaluate the software design | 3.1 Determine if the design is complete, accurate, consistent and feasible<br>3.2 Validate the software design document<br>3.3 Validate the database structure and its elements<br>3.4 Validate the user interface (UI)<br>3.5 Review the software risk analysis |
| 4. Evaluate the source code | 4.1 Validate the consistency between the code and the software design document<br>4.2 Validate logical structure and syntax, using static analysis tools |
| 5. Evaluate the testing requirements | 5.1 Review and validate the test plans<br>5.2 Review and validate the test cases |
| 6. Document the validation | 6.1 Document the results of the validation exercise<br>6.2 Recommend the current software design, or itemise the required alterations<br>6.3 Submit the report to the appropriate person for action |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Interprets and critically analyses complex software-requirement specifications |
| Writing | 6.1 | • Prepares documents using required structure, layout, and conventions |
| Interact with others | 2.2, 6.3 | • Takes audience, purpose and contextual factors into account, when making decisions about what to communicate, with whom, why, and how |
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Takes responsibility for decisions about when, and how, |


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| | | |
|---|---|---|
| | | to complete tasks and coordinate with others<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options, and evaluating options against the criteria<br>• Understands the key principles and concepts underpinning the design, and operation, of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG520 Validate an application design against specifications | ICAPRG520A Validate an application design against specifications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG520 Validate an application design against specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- interpret and check software requirement specifications documents
- use rapid application development (RAD) tools to create and present a validated proof of concept prototype
- validate the software design, source code and testing requirements and document the results
- report on results of validation, including recommended actions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the database design and implementation
- describe business and technical modelling using UML tools at intermediate level
- outline current software development methodologies
- describe, in detail, the system development life cycle (SDLC)
- explain object-oriented programming
- describe open-source development tools
- describe software-testing techniques.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:


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- tools to create prototype systems
- static analysis tools
- test plan and test cases.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG523 Apply advanced programming skills in another language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake advanced programming tasks using a selected choice of another programming language. The language may be an object-oriented language.

It applies to individuals who are programmers required to develop program code.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Code using advanced data structures | 1.1 Design dynamic data structures<br>1.2 Implement and use dynamic data structures, including double-linked lists and binary trees for coding |
| 2. Code using advanced algorithms | 2.1 Code using hashing techniques<br>2.2 Consider and record, the advantages and disadvantages, of at least three sorting algorithms |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Code at least one sorting algorithm<br>2.4 Code advanced searching techniques for use with complex data structures |
| 3. Write a simple multi-process application | 3.1 Use features of the language that enable inter-process communication through at least one mechanism<br>3.2 Use features of the language that allow for operating system 'signals' to be captured and responded to |
| 4. Use third-party libraries | 4.1 Use a third-party library in the construction of an application<br>4.2 Reference third-party documentation<br>4.3 Use procedural techniques to write an application, to work within a graphical user interface (GUI) environment |
| 5. Debug the code | 5.1 Use integrated development environment (IDE) debugging facilities, or a stand-alone debugger<br>5.2 Use program debugging techniques to detect, and resolve, errors of syntactical, logical and design origin |
| 6. Document activities | 6.1 Use source-code version control<br>6.2 Adhere to guidelines for developing maintainable code, and to a set of provided coding standards<br>6.3 Apply suitable internal documentation to all the code created, using the tools available in the target language |
| 7. Test the code | 7.1 Design and document the tests to be undertaken<br>7.2 Undertake limited testing of the produced code, to ensure that it complies with the program specification<br>7.3 Capture the test results |
| 8. Create an application | 8.1 Develop a solution, according to program-specification design document<br>8.2 Design the algorithm, and construct, and test, the application in response to a problem description and language |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.2, 6.2, 7.2, 8.1 | • Interprets, and critically analyses, complex texts and applies the appropriate strategies to construct meaning from complex texts |
| Writing | 2.2, 6.1, 6.2, 6.3, 7.1 | • Communicates complex relationships between ideas and information, matching the style of writing to the purpose and audience, and displays a knowledge of structure and layout, employing a broad vocabulary, grammatical structure, and the conventions appropriate to text |
| Get the work done | All | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying, and evaluating, options against the agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing the criteria for deciding between options<br>• Understands the key principles and concepts, underpinning the design and operation of digital systems and tools |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG523 Apply advanced programming skills in another language | ICAPRG523A Apply advanced programming skills in another language | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG523 Apply advanced programming skills in another language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design and write code using dynamic data structures
- write code using hashing techniques, sorting algorithms and advanced searching techniques
- use language features that enable inter-process communication and responses to operating system signals
- use third-party libraries in the construction of an application, including referencing third-party documentation
- design and build an application program according to a design document
- test and debug code and resolve errors of a syntactical, logical and design origin
- produce documentation according to guidelines and standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe a range of programming languages
- identify and describe languages for a GUI environment
- summarise the techniques for developing large-scale applications
- outline the procedures for programming with complex data structures
- describe the procedures for using a third-party supplied library, for standard programming features.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the software development environment
- technical documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG524 Develop high-level object-oriented class specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse requirements and produce a set of high-level object-oriented class specifications.

It applies to individuals who are required to develop object designs as part of the systems design process.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the behaviour of objects | 1.1 Analyse behaviour scenarios and the prepare documentation, according to standards<br>1.2 Identify classes, objects and abstract data types, according to requirements<br>1.3 Prepare class, object, module and process diagrams, according to specifications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Prepare a state model | 2.1 Analyse data requirements and iterate data flows<br>2.2 Prepare state-transition diagrams, according to standards<br>2.3 Improve the abstract data types and specifications |
| 3. Describe the roles and responsibilities of classes | 3.1 Review the functional requirements, assign responsibilities and update class structures<br>3.2 Specify the interface and class communication requirements<br>3.3 Prepare the interaction diagrams, according to standards |
| 4. Iterate and review the object model | 4.1 Review the current object model, class functionality and data transformation<br>4.2 Identify and develop class relationships, priorities, and the inheritance hierarchy<br>4.3 Review the class-service requirements and initial test criteria<br>4.4 Identify object processes and reuse classes<br>4.5 Document the model and forward it to the appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 4.1, 4.2 | • Interprets, and analyses, complex technical documentation |
| Writing | 1.1, 1.3, 2.2, 3.3, 4.5 | • Accurately records and completes documentation according to organisational formats and protocols<br>• Writes and edits documents to ensure accuracy and consistency of information, and clarity of meaning |
| Interact with others | 4.5 | • Shares knowledge, information and experience openly, liaising with colleagues to achieve the best possible outcome |
| Get the work done | 1.3, 3.1, 3.2, 4.1, 4.2, 4.3, 4.4 | • Uses a range of digitally-based technologies to access, extract and share relevant information, in order to achieve the required outcomes<br>• Identifies technical or conceptual issues, and applies analytical processes, to resolve these issues |


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| | | |
|---|---|---|
| | | • Uses analytical and lateral thinking to review current practices, and to develop new or improved software or systems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG524 Develop high-level object-oriented class specifications | ICAPRG524A Develop high-level object-oriented class specifications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG524 Develop high-level object-oriented class specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- specify and model abstract data types
- specify the interface between classes and objects
- document the results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline configuration management
- outline current industry-accepted object-oriented methodologies
- outline current program development methodologies
- describe data modelling techniques
- describe object-oriented analysis tools
- describe quality assurance practices.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the business, system and user requirement
- a unified modelling language (UML) modelling tool
- the appropriate learning and assessment support, when required.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG525 Build Java applets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to compile and run an applet that executes in Java-enabled browsers, and interacts with users.

It applies to individuals involved in software, web or games development and who are required to build applets, using Java that interacts with users via a browser.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Create Java source file | 1.1 Create a file with a text editor<br>1.2 Create a sub-class of the class Java.applet.<br>1.3 Ensure that applet sub-class implements at least one of the following methods: init and paint<br>1.4 Define classes that contain instance variables, methods and local variables<br>1.5 Ensure that the init method initialises instance variables, and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | constructs any graphical interface used in the applet sub-class<br>1.6 Implement the paint and update methods to manage output that is drawn in the applet window<br>1.7 Incorporate event handling methods<br>1.8 Implement the code that allows a user to enter values, and assigns these values to variables<br>1.9 Use available graphical user interface (GUI) components to allow user interaction with the applet<br>1.10 Specify and load images and sounds<br>1.11 Include comments to describe the behaviour of the applet |
| 2. Compile a source file | 2.1 Use a Java compiler to compile the file<br>2.2 Correct errors detected by the compiler<br>2.3 Confirm basic correctness of the file, to ensure that all variables have been initialised<br>2.4 Ensure the compiler creates a class file, and that the class is interpreted correctly |
| 3. Run applet | 3.1 Create and name a hypertext markup language (HTML) file, and add APPLET tag<br>3.2 Write the applet class file to match the HTML document that contains an APPLET tag<br>3.3 Confirm that the applet loads and executes correctly<br>3.4 Identify and correct run-time errors<br>3.5 Identify and correct logic errors<br>3.6 Ensure that the appearance of the applet window renders it accessible and intuitive for the user, and that its design complies with organisational standards<br>3.7 Ensure that user interaction is implemented efficiently and effectively |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 2.2, 3.4, 3.5 | • Recognises and interprets complex information |
| Writing | 1.1, 3.1 | • Develops material for a specific audience, using clear and detailed language |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 2.1, 2.3, 2.4, 3.3, 3.4, 3.4, 3.6, 3.7 | • Takes responsibility for planning, sequencing and prioritising tasks to achieve the required outcomes<br>• Uses a range of digital tools and sophisticated techniques to meet the desired outcomes<br>• Identifies technical or conceptual issues, and applies analytical processes, to resolve these issues |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG525 Build Java applets | ICAPRG525A Build Java applets | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG525 Build Java applets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review the requirements to provide an applet that executes in Java-enabled browsers, and allows users to customise the applet's operation
- write, compile and run an applet that accepts user input, and generates a response based on the input.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain object-oriented programming concepts
- outline the theoretical concepts of Java programming
- recognise, and describe, the Australian Computer Society Code of Ethics
- identify the sources of browser security restrictions.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the Java development environment
- a Java compiler and interpreter
- a Java-enabled web browser
- the appropriate learning and assessment support.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG526 Maintain functionality of legacy code programs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to maintain the functionality of legacy code programs.

It applies to individuals working in software development who are required to maintain legacy programs, updating them as required.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the functional changes required | 1.1 Consult the user to determine, and document, the functional change required<br>1.2 Clarify the impact of changes with operational personnel |
| 2. Review legacy language | 2.1 Identify the basic structures of the legacy language<br>2.2 Review the data storage of the legacy language with regard to global variables, modularisation, cohesion and coupling<br>2.3 Review the basic algorithms of the legacy language |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Identify and isolate the change | 3.1 Review the technical documentation for the system, to determine which modules to change<br>3.2 Review the source code to determine program logic and flow<br>3.3 Update the technical documentation to reflect the current state of the program |
| 4. Determine the framework for change | 4.1 Determine the change approach to be used to implement the change<br>4.2 Ascertain and detail the risks for each approach<br>4.3 Determine the personnel who will make the changes |
| 5. Design the change | 5.1 Develop the changes required, considering the impact of the changes on other parts of the system<br>5.2 Document the changes according to change-management standards |
| 6. Code the change | 6.1 Identify and obtain, the appropriate hardware and software for the change<br>6.2 Write the code according to programming standards<br>6.3 Compile and unit test the changes<br>6.4 Document the changes according to programming standards |
| 7. Test the change | 7.1 System test the changes and record the outcomes<br>7.2 Perform user acceptance testing and record the outcomes<br>7.3 Sign off the change request |
| 8. Archive the system | 8.1 Create a new version of software, according to configuration management standards<br>8.2 Archive the development system, including the source code, compilers and test data |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 2.1, 2.2, 2.3, 3.1, 3.2 | • Analyses, and interprets, technical information and defines specific features |
| Writing | 3.3, 4.2, 5.2, 6.2, 6.4, 7.1, 7.2 | • Completes documentation accurately using industry-relevant terminology and the appropriate structure for the target audience |
| Interact with others | 1.1, 1.2 | • Shares knowledge, information and experience openly, liaising with colleagues to achieve the best possible outcome |
| Get the work done | 4.1, 4.2, 4.3, 5.1, 6.1, 6.3, 7.1, 7.2, 7.3, 8.1, 8.2 | • Uses a formal change management process, identifying and evaluating several choices<br>• Evaluates the effectiveness of decisions, in terms of how well they meet stated design specifications<br>• Uses the features of digital tools to complete complex tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG526 Maintain functionality of legacy code programs | ICAPRG526A Maintain functionality of legacy code programs | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG526 Maintain functionality of legacy code programs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- read legacy language
- identify and isolate the required change
- implement the change via the chosen technique.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain operational procedures on the required operating system
- outline the organisational standards for software development
- define security and viruses
- identify privacy legislation and copyright with regard to the legacy code, the particular system involved and its data
- define the technical terminology related to reading help files and manuals
- outline different types of software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- documents detailing the organisational standards for software development
- the existing legacy code
- appropriate compilers


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- the appropriate learning and assessment support.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG527 Apply intermediate object-oriented language skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake intermediate level programming tasks using an object-oriented programming language.

It applies to programmers in a variety of fields who are required to produce programs in object-oriented languages.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Build applications using the provided language utilities | 1.1 Review the program requirements<br>1.2 Divide multiple source-code files into logical units and packages<br>1.3 Use at least two of the utilities of the target language, allowing for the internal storage of collections of data<br>1.4 Use the utilities of the target language, providing internal data-sorting and searching facilities |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Employ integrated-development environment facilities, to make files to automate program building<br>1.6 Follow the guidelines for developing maintainable code, adhering to coding standards<br>1.7 Use the facilities in the language for persisting objects to binary files<br>1.8 Use the operator and function or method overloading facilities available in the language, at an introductory level<br>1.9 Use exception-handling techniques to ensure program stability<br>1.10 Use of a class that is based on multiple inheritances |
| 2. Write programs that interact with a database | 2.1 Design and implement programs that connect to a database<br>2.2 Design and implement programs that use the language facilities to extract, update, and delete data stored in a database<br>2.3 Design and implement programs that use the language facilities to manipulate database structure (query, create and delete)<br>2.4 Write programs that deliver transactional integrity |
| 3. Write the graphical user interface | 3.1 Employ the graphical user interface (GUI) framework, or text windowing interface, appropriate to the chosen language<br>3.2 Use standard GUI components<br>3.3 Use the facilities within the language for GUI objects to respond to user and program-generated events |
| 4. Debug the application | 4.1 Use stand-alone debugging tools, or tools provided by the integrated development environment, to examine variables, and trace the running code<br>4.2 Use the debugger to detect logical and coding errors<br>4.3 Use the tracing of code and examination of variable contents during execution, to detect and correct errors |
| 5. Test the application | 5.1 Design and document limited tests of code<br>5.2 Undertake limited testing of the produced code to ensure that it complies with the program specification<br>5.3 Capture and document the test results |
| 6. Create and maintain documentation | 6.1 Read and interpret the supplied design document, to create the code<br>6.2 Create and maintain program documentation |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.6, 6.1 | • Analyses and interprets technical documents |
| Writing | 2.2, 2.3, 3.1, 3.3, 5.1, 5.3, 6.2 | • Completes technical documentation, selecting the appropriate vocabulary and structure for the intended audience |
| Get the work done | 1.2, 1.3, 1.4, 1.5, 1.7, 1.8, 1.9, 1.10, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 5.1, 5.2 | • Creates, and selects, an appropriate application that meets the set requirements<br>• Uses a range of digitally-based technologies to access, extract, and share relevant information in order to achieve the required outcomes<br>• Identifies technical or conceptual issues, and applies analytical processes, to resolve these issues<br>• Uses analytical and lateral thinking to review current practices, and to develop new or improved software or systems |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG527 Apply intermediate object-oriented language skills | ICAPRG527A Apply intermediate object-oriented language skills | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG527 Apply intermediate object-oriented language skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design and build application programs from a problem scenario and program specification
- use object oriented programming language.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain data structures
- explain small-size and medium-size application development
- define object-oriented programming concepts
- define object-oriented programming language
- explain the process and techniques related to the use of a graphical user interface (GUI), to interact with an operator
- outline the techniques to document applications.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- the requirements document or object-oriented design structures
- programming languages that support object-oriented development
- the database management system (DBMS)
- the appropriate learning and assessment support


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG528 Perform ICT data conversion

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to translate information and communications technology (ICT) data from one format to another, by means of a data conversion process.

It applies to individuals in support and implementation roles who are required to convert data from one system to another.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare the system for conversion | 1.1 Obtain the data stores that are subject to conversion<br>1.2 Protect and confirm backup solutions<br>1.3 Trial conversion work in an isolated environment, secure from the production system<br>1.4 Map and document, the required data fields from the old system to the new or upgraded system |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Determine field validation requirements from conversion plans, including data field legal ranges<br>1.6 Determine the actions to be taken with the fields or records that are rejected by the conversion plan<br>1.7 Consult stakeholders on the creation of a conversion plan<br>1.8 Design the data conversion program modules from the conversion specifications<br>1.9 Code and test data conversion program modules, according to conversion specifications<br>1.10 Confirm data conversion and test the converted production data |
| 2. Perform data conversion | 2.1 Estimate and plan for conversion time<br>2.2 Prepare the production system for data conversion and take off-line<br>2.3 Undertake action to protect production data<br>2.4 Take action to ensure minimal disruption to client business requirements during the conversion process<br>2.5 Document the data rejected by conversion routines, and the reason for rejection<br>2.6 Execute the conversion program modules<br>2.7 Document the results of the conversion process, and report to the appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.5, 1.8, 1.9 | • Interprets and analyses complex technical documentation |
| Writing | 1.4, 2.5, 2.7 | • Accurately records and completes documentation, according to organisational formats and protocols<br>• Writes, and edits, documents to ensure the accuracy and consistency of information, and clarity of meaning |


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| | | |
|---|---|---|
| Interact with others | 1.7, 2.7 | • Liaises with others to check own understanding and ensure that the objective is being met |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 1.6, 1.8, 1.9, 1.10, 2.1, 2.2, 2.3, 2.4, 2.6 | • Takes responsibility for planning, sequencing and prioritising tasks, in order to achieve the required outcomes<br>• Uses a range of digital tools and sophisticated techniques to meet the desired outcomes<br>• Identifies technical or conceptual issues, and applies analytical processes, to resolve these issues<br>• Uses analytical and lateral thinking to review current practices, and develop new or improved software or systems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG528 Perform ICT data conversion | ICAPRG528A Perform IT data conversion | Updated to meet Standards for Training Packages.<br><br>Minor change to title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG528 Perform ICT data conversion

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- define the inherent data requirements of both old and upgraded, or new systems
- remodel data to achieve successful conversion
- back up data prior to conversion
- effectively code conversion programs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain hardware and software products, including their general features and their capabilities
- explain data conversion tools and data modelling methodologies
- outline the conversion from legacy systems
- outline industry-accepted database management system (DBMS) modelling.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to the:

- analysis of the source data
- business quality assurance rules associated with data
- data mappings
- logic to convert the data


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- plan of the conversion routines
- software development environment
- technical requirements
- data conversion plan
- appropriate learning and assessment support.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG529 Apply testing techniques for software development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop test strategies and implement tests to assure the reliability and quality of an application.

It applies to individuals who are responsible for test plan preparation, execution and maintenance, the reporting of tests and defect management in an application. These individuals include quality assurance analysts, test analysts, testers, system testers, software testers, test leads and developers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and design the test | 1.1 Analyse and review software development specifications<br>1.2 Determine the test context, scope, standard and methodology<br>1.3 Determine the test types and tools<br>1.4 Determine test input data requirements<br>1.5 Design the test plan, and test cases, using various test design |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | techniques |
| 2. Prepare the test environment | 2.1 Analyse and review documents to prepare the test environment<br>2.2 Determine test environment requirements<br>2.3 Build and set up the test environment |
| 3. Implement and execute the test | 3.1 Build input data for testing<br>3.2 Create the test suite or script from test cases<br>3.3 Execute the test cases<br>3.4 Create the test record to store test result |
| 4. Manage defect and testing process | 4.1 Evaluate and report the test results<br>4.2 Track the defect and verify the fixes<br>4.3 Maintain and archive test ware |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1 | • Reviews, and evaluates, technical and business requirements |
| Writing | 4.1 | • Develops the technical reports and documentation appropriate for the target audience |
| Get the work done | 1.2, 1.3, 1.5, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.2, 4.3 | • Takes responsibility for planning, sequencing and prioritising processes, and tasks, to achieve the required outcomes<br>• Applies systematic and analytical problem-solving processes, to develop the appropriate security access control strategies<br>• Uses a range of digital tools and sophisticated techniques to meet the desired outcomes |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTPRG529 Apply testing techniques for software development | ICAPRG529A Apply testing techniques for software development | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG529 Apply testing techniques for software development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a test-plan document and test cases, to verify the completeness, reliability and performance of an application, according to requirement specifications
- analyse and prepare the test environment, and execute test cases, by using automated test tools
- document and manage the test result, by performing an application debugging process, and re-testing the application.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the characteristics of the programming language
- explain the input and output requirements
- outline software development life cycle (SDLC) methodologies
- define system layers such as the data network, hardware, operating system, database management systems, web servers, application servers, and client deployment
- explain the processes and techniques related to small-size application development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the programming and software development industry, and include access to:

- a test environment that closely resembles the production environment


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- business, functional, system and user requirements
- a system or application suitable for testing
- the appropriate learning and assessment support, when required

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG601 Develop advanced mobile multi-touch applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, develop, debug, test and deploy applications, for hand-held digital devices using the advanced features of these devices.

It applies to individuals with information and communications technology (ICT) skills who work as mobile device application developers. They may be programmers, game developers, designers and testers, who are working in the area of mobile applications development.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Work effectively on the target platform | 1.1 Review the requirements<br>1.2 Establish the platform<br>1.3 Install the required development tools, and environment<br>1.4 Use the available debugging tools and techniques<br>1.5 Deploy the completed applications on the target device, and for |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | public download<br>1.6 Test the application using an emulator |
| 2. Develop an application for a multi-touch device | 2.1 Design and code the application, responding to events<br>2.2 Design and code the application, responding to taps, touches and gestures<br>2.3 Use a model view controller to design the approach<br>2.4 Develop the application, making effective use of auto-rotation and auto-resizing facilities |
| 3. Develop the code using features of the mobile device | 3.1 List the available features of the mobile device<br>3.2 Write code requiring web connectivity, and using web services<br>3.3 Write code that communicates with another device, using a communication protocol<br>3.4 Write code using an application programming interface (API) related to at least one other advanced device feature |
| 4. Use available data persistence facilities | 4.1 Write code, to read and write, to the devices file system<br>4.2 Use synchronisation techniques to synchronise data between the device and external data sources<br>4.3 Write code to make use of available database facilities, on the chosen device |
| 5. Develop applications that are secure and stable | 5.1 Determine and apply the performance objectives<br>5.2 Ensure memory management, using tools and techniques effectively<br>5.3 Use tools and techniques to evaluate performance<br>5.4 Eliminate zombies, using appropriate tools and techniques |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.3 | • Identifies, analyses, and interprets complex technical and business protocol material in order to determine business |


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| | | |
|---|---|---|
| | | requirements |
| Writing | 3.1, 3.2, 3.3, 3.4, 4.1 | • Develops complex and technical material, using industry-specific metalanguage that allows users to define their own customised markup languages for displaying documents on the world wide web (WWW) |
| Numeracy | 2.2, 3.2 | • Extracts, evaluates and manipulates the mathematical information embedded in a range of tasks and texts |
| Navigate the world of work | 3.3 | • Recognises and responds to both, explicit and implicit, protocols within familiar work contexts |
| Get the work done | 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1, 4.2, 5.1, 5.2, 5.3, 5.4 | • Demonstrates a sophisticated understanding of the principles, concepts, language and practices associated with the digital world, and uses these to troubleshoot, and understand the uses and potential of new technology<br>• Is acutely aware of the importance of understanding, monitoring, and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences, and consider implementation issues, and contingencies<br>• When dealing with complex issues, may use intuition to identify common problems in building, and deploying mobile applications, and completing basic program debugging |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG601 Develop advanced mobile multi-touch applications | ICAPRG601A Develop advanced mobile multi-touch applications | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG601 Develop advanced mobile multi-touch applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design applications for small devices that allow multi-touch user input and have advanced mobile features
- build and test these applications
- deploy these applications onto mobile devices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the hardware, and networking, requirements of a multi-touch application
- describe and apply object-oriented programming
- identify and describe user interface designs, and their application
- describe web design methodology and its integration with hand-held devices
- identify and describe typical mobile devices that use multi-touch technologies
- summarise extensible markup language (XML) programming, and web services
- describe techniques for developing software applications.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the programming and software development industry, and include access to:

- hand-held devices and simulators
- an integrated development environment (IDE)


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- the internet and web services
- the server system, with sufficient privileges to deploy applications
- specific tools and licences, depending on the particular platform.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG602 Manage the development of technical solutions from business specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage the process of compiling client business specifications, to produce business solutions for consideration.

It applies to individuals with the project management, business, and technical skills necessary to manage complex technology projects within the information and communications technology (ICT) industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Obtain the business requirements | 1.1 Ensure that the business requirements and business specifications have been obtained from the client or the appropriate person<br>1.2 Manage the team's identification of the client's business model<br>1.3 Ensure that the technical specifications for the business problem have been determined |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Manage the confirmation of key stakeholder requirements with stakeholders<br>1.5 Confirm the documentation of business objectives, technical requirements, and the problem |
| 2. Evaluate the impact of the technical requirements | 2.1 Review business problems, opportunities and objectives<br>2.2 Confirm that the technical requirements are complete<br>2.3 Review the hardware, software and network requirements<br>2.4 Coordinate the investigation into the processes to be changed by the business solution<br>2.5 Review the evaluation document, on the impact of the technical requirements on the business |
| 3. Produce technical business solutions | 3.1 Confirm the technical solutions produced in response to problems and business requirements<br>3.2 Review the costs involved in implementing the solutions<br>3.3 Review the recommendation from a range of supplier products, to determine which one best meets the technical requirements<br>3.4 Review, and report on, the technical solutions addressing the business specifications, and provide recommendations against the business requirements |
| 4. Document and validate the agreed solutions | 4.1 Ensure the report is forwarded to the appropriate person for feedback<br>4.2 Manage the feedback and incorporate changes, as required<br>4.3 Coordinate the redistribution of adjusted reports to the appropriate person<br>4.4 Obtain sign-off on the final business solution |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.5, 2.1, 2.2, 2.3, 2.5, 3.1, 3.4, 4.2 | • Recognises, and interprets, complex technical and operational documentation, to determine and confirm job requirements |


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| | | |
|---|---|---|
| Writing | 1.4, 4.2 | • Develops a broad range of material including reports, design solutions, technical specifications and recommendations in required formats, for a specific audience, using clear and detailed language in order to convey explicit information, requirements, and recommendations |
| Oral Communication | 1.3, 1.4, 4.2 | • Articulates technically complex concepts and operational, and business-related, matters using the specific and relevant language suitable to the audience, and liaises with diverse personnel<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 2.1, 2.5, 3.2 | • Uses mathematical formulas and calculations to estimate and plan project costs |
| Interact with others | 1.1, 1.2, 4.1, 4.3, 4.4 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit the purpose and audience<br>• Fosters a collaborative culture within own sphere of influence, facilitating a sense of commitment and cohesion, and highlighting, and using the strengths of those involved |
| Get the work done | 1.1, 1.2, 2.3, 2.4, 3.1, 3.3 | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot, and understand, the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved, and how it may be interpreted, and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences, and consider implementation issues and contingencies<br>• Uses a nuanced understanding of context to adapt varied business procedures to requirements, depending on operational contingencies, risk situations and environments |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG602 Manage the development of technical solutions from business specifications | ICAPRG602A Manage the development of technical solutions from business specifications | Updated to meet Standards for Training Packages.<br><br>Minor changes to the performance criteria for clarity. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG602 Manage the development of technical solutions from business specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- adapt technologies to specified technical solutions
- use site design software and hardware
- evaluate client specifications against accepted industry practices
- produce technical solutions from business specifications
- produce information that can be shared between businesses
- apply design concepts to business solutions
- produce technical reports
- make recommendations, and offer optimum design solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the business processes for a project
- outline the client business domain, including the client organisation structure and business functionality
- explain compatibility issues and resolution procedures
- outline the configuration of internet protocol (IP) networks
- describe the importance of customer and business liaison
- summarise desktop applications and the operating system (OS), as required
- explain the procedures for linking processes
- outline project management methodologies and processes
- explain security protocols, standards and data encryption
- explain technologies, such as:


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- access networks
- core networks
- information and communications technology (ICT) network topologies
- mobile cellular networks
- network protocols and OS
- optical networks and principles
- radio frequency (RF) networks and principles
- radio frequency identification (RFID) hardware and software

- describe the development platform that provides the tools to build, and deploy, applications into target platform environments.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the programming and software development industry, and include access to:

- the client's functional requirements
- business specifications
- the database and simulation software
- organisational guidelines
- the network or computer layout
- site-design software and hardware
- information on a range of ICT business solutions.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRG604 Create cloud computing services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, build, test and deploy web services and cloud computing applications to specifications.

It applies to individuals, in computer programmer roles, with the information and communications technology (ICT) skills required to create and install web services and cloud computing applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Programming and software development

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Design web service or cloud computing application | 1.1 Gather requirements for the web service or cloud computing application<br>1.2 Determine the development environment and tools required to create web service or cloud computing application<br>1.3 Identify any possible big data applications<br>1.4 Define architecture and framework |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Build web service | 2.1 Itemise required functionality<br>2.2 Build web service in the determined environment to meet required functionality |
| 3. Build cloud computing application | 3.1 Determine required functionality<br>3.2 Build cloud computing application in the determined environment to meet the required functionality |
| 4. Test web service or cloud computing application | 4.1 Test web service or cloud computing application for overall functionality according to requirements<br>4.2 Iterate design or build until test results meet requirements |
| 5. Deploy web service or cloud computing application | 5.1 Deploy web service or cloud computing application to the specified environment<br>5.2 Publish web service or cloud computing application to the specified environment |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.1, 4.1 | • Recognises and interprets complex technical and operational documentation to determine and confirm job requirements |
| Writing | 1.3, 1.4, 2.1, 3.2, 4.2, 5.1, 5.2 | • Develops complex documentation in required formats using clear and detailed language to convey explicit information, requirements and recommendations<br>• Writes and edits computer code and technical data ensuring correct syntax |
| Oral Communication | 1.1 | • Uses listening and questioning skills to confirm understanding for requirements<br>• Articulates technically complex concepts and operational and business-related matters using specific and relevant language suitable to audience |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 2.2, 3.1, 3.2, 4.1, | • Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot |


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| | | |
|---|---|---|
| | 4.2, 5.1, 5.2 | and understands the uses and potential of new technology<br>• Uses a broad range of strategies to store, access and organise virtual information recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Is acutely aware of the importance of understanding, monitoring and controlling access to digitally stored and transmitted information<br>• Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• Uses understanding of context to address common problems in operating a web service or cloud computing application and performs basic debugging when required |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRG604 Create cloud computing services | ICAPRG603A Create cloud computing services | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PCs to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRG604 Create cloud computing services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, build, test and deploy a web service to specification that can be accessed and used from a separate web application
- design, build, test and deploy a cloud computing application to specification that can be accessed from a variety of portals
- document the completed development.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe the development tools required to produce services deployable through cloud computing
- summarise the internet infrastructure necessary for cloud computing
- describe object-oriented programming and its application to cloud computing
- describe database access and manipulation on the web using:
  - hypertext markup language (HTML)
  - eXtensible markup language (XML)
- describe the term "big data" and explain its relevance to cloud computing.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the programming and software development industry and include access to:


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- specific requirements, including client and functionality requirements
- integrated development environment (IDE) for the determined language
- the database server with tools to access data source and develop queries
- the web server for the determined environment
- the internet and a web browser.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTPRO501 Develop training, marketing and sales resources for telecommunications products

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop documentation and training material, providing product-specific technical information resources for use by technical, sales and training personnel within an organisation.

It applies to individuals with responsibilities for professional development on product-specific material who may be technical or semi-technical staff involved in sales and marketing of new and emerging technologies in next generation networks (NGN). The training resources, including web resources, are likely to be for new products using emerging technologies, supplied by the service provider.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – product skills and advice

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |


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| | |
|---|---|
| 1. Prepare information and formats for training, marketing and sales resources | 1.1 Identify target audience, product type, resources type, format and purpose to be developed<br>1.2 Locate enterprise resources relating to telecommunications product information and technical data suitable for training, such as marketing and sales materials, manufacturer's documentation and sites for suitable resources<br>1.3 Research range of formats for resources and materials to meet requirements of identified audience<br>1.4 Determine specifications for resource material and confirm with client for approval |
| 2. Develop resources and obtain approvals | 2.1 Produce draft training, marketing and sales resources in consultation with relevant user groups and training resource designers<br>2.2 Check that resources are for latest product available for sales and marketing<br>2.3 Produce clear and accurate training manuals and user guides<br>2.4 Confirm accuracy of information with appropriate technical staff prior to publication or production, and obtain approvals |
| 3. Monitor distribution and maintenance of resources | 3.1 Develop schedule for distribution of resources consistent with product or facility release and list of users<br>3.2 Seek feedback on content and presentation from users and make improvements as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.4, 2.2, 2.4, 3.2 | • Critically organises, evaluates and applies content from a range of structurally complex texts including client briefs, product and technical information and interpretation of feedback from users |
| Writing | 1.3, 1.4, 2.1, | • Generates complex written texts appropriate for a specific audience, demonstrating control over a |


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| | | |
|---|---|---|
| | 2.3, 3.1, 3.2 | broad range of writing styles and purposes |
| Oral Communication | 1.1, 1.4, 2.1, 2.4, 3.2 | • Establishes and maintains complex and effective rapport with clients and colleagues, with a depth of understanding that includes multiple and unstated meanings |
| Navigate the world of work | 1.4, 2.4 | • Recognises and follows explicit and implicit protocols in relation to liaison with clients and staff<br>• Ensures knowledge of legislative requirements and products is kept up to date to provide accurate information |
| Get the work done | 1.1-1.4, 2.1, 2.2, 3.2 | • Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies in relation to resource production<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account when determining content and format requirements<br>• Adopts content and presentation proposals suggested by others and finds ways to make them work in practice<br>• Reflects on the ways in which digital systems and tools are used or could be used to develop resources, and begins to recognise strategic as well as operational applications |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTPRO501 Develop training, marketing and sales resources for telecommunications products | ICTPRO5026A Develop training, marketing and sales resources for telecommunications products | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTPRO501 Develop training, marketing and sales resources for telecommunications products

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- interpret and use equipment and system manuals, specifications, relevant enterprise policy and documentation
- develop product training, marketing and sales resources for different knowledge and skill levels and applications
- evaluate web based training, marketing and sales resources
- implement improvements based on feedback
- provide a range of resource types, including print based and web based.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate common client telecommunications applications and related equipment
- investigate work health and safety (WHS) and regulatory requirements relevant to training and marketing
- investigate and compare specific product knowledge and reference documents relevant to products for inclusion in appropriate resources
- define relevant technical terminology
- outline the steps in the process of developing product resources.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – product skills and advice field of work and include access to:

- a workplace where technical information may be developed and distributed to technical, sales and training staff
- relevant product technical information, databases, legislative requirements and other site and project related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN201 Install a satellite antenna

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to assemble, connect, align and test equipment according to plans, specifications and site specific requirements.

It applies to individuals who work on single and multiple dwellings, commercial buildings, telecommunications structures and at ground level to enable signals from geostationary communications satellites. Installations might be new or existing, stand alone or be a part of a site with multiple antennas.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for work on satellite antenna | 1.1 Prepare for installation, applying all relevant legislation, codes, regulations and standards, and identify any safety issues<br>1.2 Organise resources to be available on site |


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| | |
|---|---|
| | 1.3 Contact client to arrange access to site and notify about possible outage<br>1.4 Organise tools and equipment and ensure they are in safe working order and adjusted to manufacturer's specifications<br>1.5 Obtain details of satellite to be acquired and precise details of satellite antenna location<br>1.6 Determine azimuth and elevation for satellite receiving antenna<br>1.7 Determine polarisation angle of satellite receiving antenna feedhorn<br>1.8 Determine suitable position to mount antenna with agreement from client |
| 2. Assemble and mount satellite antenna and cables | 2.1 Assemble satellite antenna on site according to plans, specifications and enterprise guidelines using safe industry practices<br>2.2 Connect coaxial cable to antenna and install lightning protection devices<br>2.3 Mount satellite antenna on to installed mounting arrangements and set initial antenna azimuth, elevation and polarisation |
| 3. Test and align antenna system | 3.1 Connect installed antenna system to satellite receiver or test equipment and make final adjustments to azimuth, elevation and polarisation to optimise signal level and quality<br>3.2 Conduct performance tests according to manufacturer's specifications and enterprise guidelines<br>3.3 Interpret test results, compare with manufacturer's design specifications and make adjustments |
| 4. Complete administrative duties | 4.1 Record test results and complete appropriate records<br>4.2 Secure and clean up site to original condition in environmentally safe manner<br>4.3 Notify client of work completion and obtain sign off |

# Foundation Skills

**Foundation Skills**

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.4, 2.1, 3.2, 3.3 | • Recognises and interprets textual information from relevant sources to determine specifications, enterprise guidelines and plans |
| Writing | 1.3, 1.8, 4.1, 4.3 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients |
| Oral Communication | 1.3, 1.8, 4.3 | • Uses specific and relevant language to clearly articulate operational and site matters<br>• Uses questioning and listening techniques to determine the views and opinions of others |
| Numeracy | 1.6, 1.7 | • Analyses numerical information to measure angles, evaluate technical data, interpret results and take measurements |
| Navigate the world of work | 1.1, 1.4, 2.1, 4.2 | • Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safe industry practices<br>• Understands the main tasks, responsibilities and boundaries of own work |
| Get the work done | 1.2, 1.4, 1.5, 1.8, 2.1-2.3, 3.1-3.3 | • Determines job priorities, sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the resources and access required<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Identifies and implements standard solutions for routine problems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN201 Install a satellite antenna | ICTRFN2163B Install a satellite antenna | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN201 Install a satellite antenna

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare the site and obtain resources in preparation for installation
- determine satellite type and orientation
- assemble, install, align and test a satellite antenna according to plans and specifications, and site specific safety requirements
- conduct performance tests according to manufacturer's specifications and enterprise guidelines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the following features of a satellite antenna:
  - directivity
  - operation of parabolic reflector and feedhorn
  - optimum placement
  - pattern
  - polarisation
- discuss bit error ratio (BER)
- summarise coaxial cable types and properties
- discuss electromagnetic waves with reference to:
  - absorption by trees and buildings
  - effect of weather on absorption
  - awareness of exposure to electromagnetic radiation (EMR)


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- outline legislation, codes of practice and other formal agreements that directly impact on antenna installation
- explain modulation:
  - bandwidth
  - individual spectrum shape of digital satellite television signals
- discuss modulation error ratio (MER)
- outline radio frequency (RF) spectrum terminology related to bands used for satellite broadcasting (C, S, L, Ku, Ka bands)
- outline satellite antenna product knowledge
- summarise signal level expressed in dBuV units
- explain specific work health and safety (WHS) requirements that impact on the installation of satellite antenna equipment.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- a suitable site for satellite antenna installation
- a range of antennas and cables currently used in industry
- a range of general tools and test equipment required for satellite antenna installation and testing.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN202 Install a terrestrial antenna

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to assemble, connect and test receiving antenna equipment according to plans, specifications and site specific requirements.

It applies to individuals who might work on single and multiple dwellings, commercial buildings and other telecommunications structures that may be new or existing, stand alone or be a part of a site with multiple antennas.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for work on terrestrial antenna | 1.1 Prepare for installation, applying all relevant legislation, codes, regulations and standards, and identify any safety issues<br>1.2 Organise resources to be available on site<br>1.3 Contact client to arrange access to site and notify about possible |


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| | |
|---|---|
| | outage<br>1.4 Organise tools and equipment, and ensure they are in safe working order and adjusted to manufacturer's specifications |
| 2. Assemble and mount antenna and coaxial cable | 2.1 Assemble antenna on site according to plans, specifications and enterprise guidelines using safe industry practice<br>2.2 Connect coaxial cable to antenna and install lightning protection devices<br>2.3 Mount antenna to structure, and set polarisation and initial antenna azimuth and elevation |
| 3. Test and align antenna system | 3.1 Connect installed antenna system to appropriate test equipment and pan antenna to optimise signal across all specified channel frequencies<br>3.2 Conduct performance tests according to manufacturer's specifications and enterprise guidelines<br>3.3 Interpret test results, compare with manufacturer's design specifications and make adjustments |
| 4. Complete administrative duties | 4.1 Record test results and complete appropriate records<br>4.2 Secure and clean up site to original condition in environmentally safe manner<br>4.3 Notify client of work completion and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1, 3.2, 3.3 | • Recognises and interprets textual information from relevant sources to determine specifications, enterprise guidelines and plans |
| Writing | 1.3, 4.1, 4.3 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients |
| Oral Communication | 1.3, 4.3 | • Uses specific and relevant language to clearly articulate operational and site matters, and uses questioning and listening techniques to determine the views and opinions of others |


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| | | |
|---|---|---|
| Numeracy | 3.3 | • Analyses numerical information to interpret and evaluate technical data and results, and to take measurements |
| Navigate the world of work | 1.1, 1.4, 2.1, 4.2 | • Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safe industry practices<br>• Understands the main tasks, responsibilities and boundaries of own work |
| Get the work done | 1.1, 1.2, 1.4, 2.1-2.3, 3.1-3.3 | • Determines job priorities, sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the resources and access required<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Identifies and implements standard solutions for routine problems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN202 Install a terrestrial antenna | ICTRFN2164B Install a terrestrial antenna | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN202 Install a terrestrial antenna

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- organise the site and obtain relevant resources in preparation for installation
- assemble, install, align and test a terrestrial antenna according to plans and specifications, and site specific safety requirements
- conduct performance tests according to manufacturer's specifications and enterprise guidelines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the following features of an antenna:
  - directivity
  - front to back ratio
  - optimum placement
  - pattern
  - polarisation
- discuss bit error ratio (BER)
- summarise coaxial cable types and properties
- discuss electromagnetic waves including:
  - absorption by trees and buildings
  - awareness of exposure to electromagnetic radiation (EMR)
  - reflection


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- outline legislation, codes of practice and other formal agreements that directly impact on antenna installation
- explain modulation including:
  - bandwidth
  - individual spectrum shape of analog and digital television signals and digital audio broadcasting plus (DAB+) digital radio signals
- discuss modulation error ratio (MER)
- outline radio frequency (RF) spectrum including:
  - Australian DAB+ digital radio channel frequencies
  - Australian television ultra high frequency (UHF) and very high frequency (VHF) channel plan (digital and analog)
  - terminology related to bands used for broadcasting (Bands I , II, III, IV and V)
- explain signal level expressed in dBuV units
- discuss specific work health and safety (WHS) requirements that impact on the installation of terrestrial antenna equipment
- summarise television antenna product knowledge.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- a suitable site for satellite antenna installation
- a range of antennas and cables currently used in industry
- a range of general and test equipment required for satellite antenna installation and testing.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN301 Install a radio communications antenna and feedline

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install and test a communications antenna and feedline on a range of fixed or mobile structures

It applies to individuals working as telecommunications and radio communications technicians who operate within cellular, radio broadband and digital TV reception applications. Installations may be new or existing, standalone or part of a site with multiple antennas.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan assembly of antenna system | 1.1 Arrange access to site according to required procedure<br>1.2 Apply all relevant legislation, codes, regulations and standards in planning process |


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| | |
|---|---|
| | 1.3 Obtain relevant antenna specifications, requirements and radio communication site management book (RCSMB) from appropriate personnel<br>1.4 Organise appropriate installation personnel to be available on site<br>1.5 Assess relevant hazard levels from RCSMB and take appropriate preventative action according to prescribed safety requirements<br>1.6 Identify other antennas at site location and notify those who may be affected by outages<br>1.7 Inspect antenna system and feedline for physical damage before further work is performed<br>1.8 Organise tools and equipment and ensure they are in safe working order and adjusted to manufacturer's specifications |
| 2. Assemble, mount and align antenna and prepare feedline | 2.1 Follow site specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>2.2 Assemble antenna system in safe manner according to manufacturer's instructions<br>2.3 Mount antenna with correct azimuth and polarisation according to manufacturer's instructions and work practices<br>2.4 Install radome to antenna if provided<br>2.5 Install lightning protection systems according to plans and specifications<br>2.6 Align antenna in horizontal and vertical planes to maximise signal |
| 3. Test antenna installation and document test results | 3.1 Conduct performance tests in safe manner according to manufacturer's specifications and instructions<br>3.2 Record, interpret and compare test results with manufacturer's data or design specifications<br>3.3 Confirm correct overall operation of antenna system |
| 4. Complete administrative tasks and clean up site | 4.1 Complete and store appropriate records and test results according to enterprise policy<br>4.2 Label radio frequency (RF) transmitter equipment and feedlines according to legislation<br>4.3 Notify all affected by outage that normal operation can resume<br>4.4 Clean, pack and store all tools and test equipment, and organise transport in suitable protective casing where appropriate<br>4.5 Restore any changes made to worksite to client's satisfaction and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.8, 2.2, 2.5, 3.1, 4.1 | • Recognises and interprets textual information from relevant sources to determine specifications, enterprise guidelines, policy and instructional material |
| Writing | 1.4, 1.6, 3.2, 4.1-4.3 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients |
| Oral Communication | 1.3, 1.4, 1.6, 4.3 | • Uses specific and relevant language to clearly articulate operational and site matters and appropriate tone for successful negotiations<br>• Uses questioning and listening techniques to determine the view and opinions of others |
| Numeracy | 2.6, 3.1, 3.2 | • Analyses numerical information to evaluate technical data and interpret results, take measurements and correctly calibrate equipment |
| Navigate the world of work | 1.5, 2.1-2.3, 4.2 | • Takes personal responsibility for adherence to legal and regulatory requirements with specific reference to safe industry practices<br>• Understands the main tasks, responsibilities and boundaries of own work |
| Get the work done | 1.1, 1.6-1.8, 2.3-2.5, 3.1, 3.3, 4.1, 4.4, 4.5 | • Determines job priorities, sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the resources and access required<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Identifies and implements standard solutions for typical installation challenges<br>• Follows routine procedures for using digital technology to enter, store and retrieve information directly relevant to own enterprise policy |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTRFN301 Install a radio communications antenna and feedline | ICTRFN3055A Install a radio communications antenna and feedline | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN301 Install a radio communications antenna and feedline

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine installation requirements and ensure site inspection activities are conducted prior to installation
- conduct installation of a communications antenna according to plans and specifications
- assess hazard levels at a radio frequency (RF) site and apply knowledge of safety precautions for self, fellow workers and the public
- mount an antenna, connect a transmission line and physically align an antenna
- use appropriate test equipment to perform a return loss sweep measurement or a measurement of forward and reflected power on at least two different antenna systems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline current industry practice for antenna installation including:
  - earthing
  - lightning protection
- describe the procedures and equipment required for:
  - antenna sweep testing to measure return loss
  - measurement of distance to fault
  - measurement of feedline insertion loss
  - measurement of forward and reflected RF power
- summarise features of instrument and equipment test methods and performance requirements


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- outline legislation, codes of practice and other formal agreements that directly impact on operation and testing of radio communications antennas and equipment
- identify the general components and installation of antennas and feedlines
- discuss the application of RF and electromagnetic radiation (EMR) standards and specific work health and safety (WHS) requirements
- discuss the impact on the use and testing of radio communications instruments and equipment
- identify the types of antennas that can withstand extreme environments
- summarise typical issues and challenges that occur in telecommunications antenna installations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- a site for antenna installation
- a range of antennas and feedlines currently used in industry
- a range of general tools and test equipment required for antenna installation and testing.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN302 Install mobile telecommunications in motor vehicles

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to fit radio transceivers and cellular mobile phone handsets with powered docking cradles and to install peripheral components such as external antenna, microphone, loudspeaker, mobile data terminals and global positioning systems (GPS) in domestic, commercial or industrial motor vehicles.

It applies to individuals working as installers and technicians who liaise with clients to determine all technical requirements and interpret all regulatory and legislative requirements appropriately.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan for installation of mobile telecommunications in motor vehicles | 1.1 Obtain relevant legislation, codes, regulations and standards and follow work health and safety (WHS) and environmental requirements for given work<br>1.2 Obtain mobile telecommunications equipment and manufacturer's |


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| | |
|---|---|
| | installation documentation<br>1.3 Determine critical automotive electrical systems that need to be considered during installation process to prevent any damage to vehicle system<br>1.4 Verify installation requirements from client and advise client of issues affecting performance<br>1.5 Obtain tools and test equipment required for safe work practices |
| 2. Install mobile equipment | 2.1 Attach primary mobile telecommunications equipment to vehicle using fixing and fastening hardware, clear of air bag deployment and according to client, vehicle and equipment manufacturer and WHS requirements<br>2.2 Wire primary mobile telecommunications equipment to vehicle electrical system using industry wiring practices without impacting on other electrical systems<br>2.3 Attach and wire peripheral mobile telecommunications equipment and components of installation to client’s and manufacturer's requirements<br>2.4 Replace any existing fittings or vehicle components removed during installation and restore to original condition<br>2.5 Test completed installation to verify that operation of critical automotive electrical systems have not been affected, and rectify if required |
| 3. Complete installation | 3.1 Restore vehicle and worksite to client's satisfaction by disposing of waste materials according to environmental requirements<br>3.2 Note and document any damage that may have occurred during installation and report according to enterprise procedures<br>3.3 Instruct client on operation of installed equipment<br>3.4 Complete all administrative tasks and file according to enterprise requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.3, 3.2, | • Recognises and interprets textual information from relevant sources to determine job specifications and |


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| | | |
|---|---|---|
| | 3.4 | regulatory and legislative requirements |
| Writing | 1.4, 3.2 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients |
| Oral Communication | 1.4, 3.3 | • Uses specific and relevant language to clearly articulate technical information and appropriate tone for successful negotiations<br>• Uses questioning and listening techniques to determine the understanding of others |
| Numeracy | 2.2, 2.3, 2.5 | • Performs calculations appropriate for measuring and estimating materials and for testing installations |
| Navigate the world of work | 1.1, 2.1, 3.2 | • Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safe industry practices<br>• Understands the nature and purpose of own role and associated responsibilities, and how it contributes to the work of others in the immediate work context |
| Get the work done | 1.1-1.3, 1.5, 2.1-2.5, 3.4 | • Determines job priorities, sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the resources and access required<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Identifies and implements standard solutions for typical installation challenges<br>• Reflects on outcomes and identifies what worked and where things could be done differently in the future |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN302 Install mobile telecommunications in motor vehicles | ICTRFN3070A Install mobile telecommunications in motor vehicles | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN302 Install mobile telecommunications in motor vehicles

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- obtain installation parameters and compliance requirements in preparation for installation
- install cable loom, wiring mobile and peripheral equipment
- test the equipment to verify correct installation and operation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline customer service principles, particularly dealing with clients face to face
- discuss electrical fundamentals
- summarise electromagnetic radiation (EMR)
- discuss enterprise or service-specific knowledge of products and services supplied
- outline objectives and methods of training for product use for client education
- summarise work health and safety (WHS) principles and enterprise-specific job safety analysis (JSA) requirements
- provide an overview of mobile radio and cellular radio product range and connection methods
- summarise pre-installation enterprise-specific requirements
- explain the following aspects of radio frequency (RF):
  - principles
  - safety
  - theory
- explain return path technology


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- discuss telephony principles to support return path awareness
- summarise test set ups for final testing
- outline vehicle electrical, electronics and computer-managed systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- vehicles and sites at which installation may be conducted
- testing equipment currently used in industry
- relevant regulatory and equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN303 Install WiMAX customer premises equipment broadband wireless access equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to connect, set up and test Worldwide Interoperability for Microwave Access (WiMAX) customer premises equipment (CPE) in homes and commercial premises.

It applies to individuals working as technicians who connect indoor units to a customer network.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for WiMAX equipment installation | 1.1 Arrange access to site according to required procedure<br>1.2 Verify customer requirements, type of WiMAX CPE equipment and location of proposed installation according to plans obtained from authorised personnel |


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| | |
|---|---|
| | 1.3 Prepare tools, equipment and CPE required for installation |
| 2. Install outdoor unit and antenna | 2.1 Make worksite safe by identifying existing and potential hazards<br>2.2 Comply with relevant legislation, codes, regulations and standards, work health and safety (WHS) and environmental requirements<br>2.3 Mount outdoor unit according to manufacturer's specifications and enterprise plans<br>2.4 Connect outdoor unit to indoor unit using specified cable<br>2.5 Position antenna towards distant WiMAX base station for preliminary orientation<br>2.6 Align unit for maximum signal strength using received signal strength indication (RSSI) display<br>2.7 Record installation and alignment details<br>2.8 Connect indoor unit and accessories to customer equipment |
| 3. Test performance of installation | 3.1 Test WiMAX CPE according to manufacturer's procedures<br>3.2 Check operating environment does not degrade test results<br>3.3 Evaluate test results to verify operational performance with customer |
| 4. Restore site and complete documentation | 4.1 Restore worksite to customer's satisfaction<br>4.2 Complete reports on installation<br>4.3 Notify customer and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.3, 3.1 | • Recognises and interprets textual information from relevant sources to determine job specifications and regulatory and legislative requirements |
| Writing | 2.7, 4.2, 4.3 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with customers |


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| | | |
|---|---|---|
| Numeracy | 2.6, 3.3 | • Analyses numerical information to interpret technical data |
| Oral Communication | 1.2, 4.3 | • Uses specific and relevant language to clearly articulate technical information<br>• Uses appropriate tone and listening techniques to determine the understanding of others |
| Navigate the world of work | 2.1, 2.2 | • Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safe industry practices<br>• Understands the nature and purpose of own role and associated responsibilities |
| Get the work done | 1.1-1.3, 2.3-2.6, 2.8, 3.1, 3.2, 4.1 | • Determines job priorities and sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the resources and access required<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Identifies and implements standard solutions for typical installation challenges<br>• Reflects on outcomes and identifies what worked and where things could be done differently in the future |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN303 Install WiMAX customer premises equipment broadband wireless access equipment | ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN303 Install WiMAX customer premises equipment broadband wireless access equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- ensure that the site access, resources and installation requirements are confirmed prior to installation
- install and test Worldwide Interoperability for Microwave Access (WiMAX) customer premises equipment (CPE) outdoor units
- install indoor unit and connect to customer network
- reinstate site, document and complete installation reports.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the wireless standard ‘WiMAX’ including:
  - general characteristics of WiMAX networks e.g. mobile broadband and internet access
  - applications of WiMAX technology
  - terminology associated with WiMAX technologies
  - range and function of gateway devices
  - protocols IEEE 802.16 and IEEE 802.11
- identify and discuss the relevant legislation, codes, regulations and standards, work health and safety (WHS) and environmental requirements
- explain the impact of location on microwave propagation and losses.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites on which WiMAX installations can be conducted
- tools and equipment required for installation
- relevant regulatory and equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN304 Construct and test a radio communications device

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan, build and review a radio communications transmitting or receiving device.

It applies to individuals working as radio maintenance technicians, radio installers and radio repairers who use specialist equipment and work within regulatory and legislative frameworks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to construct radio communications device | 1.1 Prepare for construction, applying all relevant legislation, codes, regulations and standards, and identify any safety issues<br>1.2 Determine details of radio communications device to be constructed from project specifications<br>1.3 Produce wiring diagram, component list and block diagram of radio |


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| | |
|---|---|
| | communications device to prepare for construction and testing of device<br>1.4 Draw up plans showing method of construction and enclosure details<br>1.5 Designate suitable test points along signal flow paths on circuit diagram for testing of functional blocks<br>1.6 Produce test setups to evaluate performance of radio communications device<br>1.7 Obtain tools and test equipment |
| 2. Construct and test radio communications device | 2.1 Assemble radio communications device according to circuit diagram and layout drawing<br>2.2 Test performance and operation of individual functional blocks and overall radio communications device according to test regime<br>2.3 Transmit or receive signals to evaluate qualitative performance through radio communications device |
| 3. Complete documentation and clean up worksite | 3.1 Document results of test procedures and compare with initial project specifications<br>3.2 Finalise project report and make recommendations for improvement to radio communications device<br>3.3 Remove waste from worksite according to environmental requirements and restore site to safe condition |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2 | • Recognises and interprets textual information from relevant sources to determine job specifications and regulatory and legislative requirements |
| Writing | 1.3-1.5, 3.1, 3.2 | • Uses clear, technically specific language, appropriate formatting and diagrammatic information to complete and update workplace documentation |
| Numeracy | 2.3 | • Analyses numerical information when undertaking test measurements, interpreting results and evaluating performance |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 3.3 | • Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safe industry practices<br>• Understands the nature and purpose of own role and associated responsibilities |
| Get the work done | 1.1, 1.6, 1.7, 2.1, 2.2, 3.2 | • Determines job priorities, sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the equipment, resources and access required<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Identifies and implements standard solutions when troubleshooting and managing contingencies to adapt assembly and review procedures<br>• Reviews outcomes and identifies technical improvements that could be made |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN304 Construct and test a radio communications device | ICTRFN3155A Construct and test a radio communications device | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN304 Construct and test a radio communications device

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and prepare for construction of a radio communications device
- prepare a wiring diagram and component list
- construct a radio communications device
- test a radio communications device.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain electrical symbols and circuit diagrams
- summarise the general principles of radio communications and radio propagation
- identify and outline the characteristics of:
  - radio communications components
  - device pinouts
  - part numbers
  - polarities
  - ratings
- summarise the operation and characteristics of:
  - amplifiers
  - demodulators
  - mixers
  - modulators


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  - oscillators
- explain the principles of modulation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites where radio communications devices may be constructed and tested
- test instruments currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN305 Operate and maintain radio communications technical instruments and field equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to take measurements, find faults, undertake minor repairs and commission new instruments and equipment.

It applies to individuals with proficient technical skills including field officers from regulatory authorities or other private and public organisations. In this role, individuals must comply with radio communications transmitter licensing requirements, operator certificates for maritime and aeronautical services, work health and safety (WHS) and electromagnetic radiation (EMR) licensing requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for use of instruments and field equipment | 1.1 Plan and prepare work according to site procedures, operating environment and relevant legislation, codes, regulations and standards<br>1.2 Select measurements required to meet performance outcomes |


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| | |
|---|---|
| | 1.3 Read, interpret and use equipment and system manuals, specifications and relevant organisational policy to determine work requirements<br>1.4 Select and ensure equipment for work activities is ready for operation<br>1.5 Determine, address and report potential risks, hazards and environmental issues<br>1.6 Adhere to relevant emergency procedures, policy guidelines and WHS procedures to ensure safety of personnel and plant |
| 2. Test instruments and field equipment | 2.1 Perform safety checks according to instrument and equipment manual and organisational procedures<br>2.2 Confirm equipment is calibrated and calibration label is within approved timeframes<br>2.3 Select appropriate traceable calibrated equipment where measurements are required to be traceable according to national standards<br>2.4 Label and report damaged or unsafe instruments and field equipment, and send for service<br>2.5 Update operational log books |
| 3. Operate instruments and field equipment | 3.1 Optimise instrument and equipment settings for particular measurement or analysis<br>3.2 Perform measurements with optimum precision given field and technical constraints<br>3.3 Assess data for accuracy and precision against quality control information, known standards and references within measurement uncertainty |
| 4. Maintain instruments and field equipment | 4.1 Use fault finding techniques to verify and rectify faults<br>4.2 Perform preventative maintenance within limits of authorisation and report equipment wear and faults<br>4.3 Replace defective parts and make adjustments according to equipment specifications<br>4.4 Seek expert help from appropriate colleagues where problems are encountered<br>4.5 Update maintenance and calibration records according to organisational procedures |
| 5. Commission new instruments and equipment | 5.1 Arrange commissioning procedures with manufacturer's agent<br>5.2 Unpack, check and assemble instruments and equipment according to manufacturer's warranty requirements |


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| | |
|---|---|
| | 5.3 Check instrument and equipment performance against specifications prior to acceptance of item<br>5.4 Prepare operating instructions and make available to relevant personnel |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 3.3, 4.3, 5.2, 5.3 | • Recognises and interprets information from relevant sources to determine technical specifications and regulatory and legislative requirements |
| Writing | 1.5, 2.4, 2.5, 4.2, 4.5, 5.1, 5.4 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with relevant internal and external personnel |
| Oral Communication | 1.5, 4.2, 4.4, 5.1 | • Uses specific and relevant language and appropriate tone to clearly articulate technical, operational and legal information to internal and external personnel<br>• Uses listening techniques to determine the understanding of others |
| Numeracy | 3.2, 3.3, 5.3 | • Analyses numerical information when undertaking test measurements, interpreting results, calibrating equipment and evaluating performance |
| Navigate the world of work | 1.1, 1.6, 2.1, 2.3, 4.5 | • Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to the safety of self, other personnel and the plant<br>• Understands the nature and purpose of own role and associated responsibilities |
| Get the work done | 1.1, 1.2, 1.4, 2.2, 2.4, 3.1, 4.1-4.3, 5.2 | • Determines job priorities, sequences the steps involved in clearly defined and familiar tasks, and identifies and assembles the instruments, equipment and other resources required<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and |


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| | | |
|---|---|---|
| | | taking situational factors into account<br>• Identifies and implements standard solutions for typical equipment and instrument faults<br>• Reflects on outcomes and identifies what worked and where things could be done differently in the future |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN305 Operate and maintain radio communications technical instruments and field equipment | ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN305 Operate and maintain radio communications technical instruments and field equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- obtain read and interpret radio communications instrument operating documentation
- prepare, operate and maintain radio communications instruments and field equipment appropriate to a radio communications environment
- comply with site risk control, work health and safety (WHS), environmental, quality and communication requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the features and operating requirements of calibrated equipment and test equipment including:
  - digital radio communications measuring equipment
  - radio frequency (RF) termination
  - spectrum analyser
  - power meter
  - modulation analyser
- outline features of instrument and equipment test methods and performance requirements
- explain legislation, codes of practice and other formal agreements that directly impact on operation and testing of radio communications instruments and equipment
- outline manufacturer’s requirements for operation and testing of radio communications equipment and calibrated equipment
- summarise measurements according to test specifications


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- list radio communications instruments and equipment
- list and describe the common WHS requirements that impact on the use and testing of radio communications instruments and equipment
- discuss typical issues and challenges that occur with radio communications instruments and field equipment.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites on which instruments and field equipment can be operated
- field measurement equipment currently used in industry
- relevant instrument and equipment manuals and other procedural documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN401 Conduct radio frequency measurements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge to plan and undertake testing, including measuring, recording and interpreting results within all legislative and regulatory frameworks.

It applies to individuals who work in the field to install, maintain, upgrade and commission radio frequency (RF) telecommunications systems. These systems may include satellite and microwave, radio or television broadcasting, pay television, free to air television, radio frequency identification (RFID), mobile radio, cellular and Worldwide Interoperability for Microwave Access (WiMAX) networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to conduct RF measurements | 1.1 Arrange access to site according to required procedure<br>1.2 Determine type of measurements required based on industry environment |


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| | |
|---|---|
| | 1.3 Assess impact of conducting measurements on network and advise clients and appropriate person accordingly<br>1.4 Assess previous measurement data if available |
| 2. Conduct RF measurements | 2.1 Check that prescribed safety arrangements associated with RF radiation are in place; otherwise, take corrective action<br>2.2 Monitor work activity to ensure it meets site specifications, and relevant legislation, codes, regulations and standards<br>2.3 Configure test equipment according to manufacturer's specifications<br>2.4 Conduct measurements according to planned requirements<br>2.5 Assess RF levels at occupational and non-occupational distances<br>2.6 Record all measurements and test configurations |
| 3. Analyse measurement outcomes | 3.1 Verify measurements against relevant standards and vendor specifications<br>3.2 Assess problems and variance for corrective action, and notify appropriate person according to enterprise procedures<br>3.3 Record processes and recommendations |
| 4. Document measurement results | 4.1 Complete client documentations<br>4.2 Notify client to obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.3, 3.1 | • Recognises and interprets information from relevant sources to determine technical specifications and regulatory and legislative requirements |
| Writing | 1.3, 2.6, 3.2, 3.3, 4.1, 4.2 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients |
| Oral Communication | 1.3, 3.2, 4.2 | • Uses specific and relevant language and appropriate tone to provide and ask for technical, operational and legal advice |


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| | | |
|---|---|---|
| | | • Uses listening techniques to determine understanding |
| Numeracy | 1.4, 2.4, 2.5, 3.1 | • Evaluates and reviews numerical information when undertaking test measurements, interpreting results, calibrating equipment and evaluating performance |
| Navigate the world of work | 2.1, 2.2, 3.2 | • Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safety<br>• Understands the nature and purpose of own role and associated responsibilities |
| Get the work done | 1.1-1.3, 2.3, 3.2, 3.3 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Identifies and assembles the instruments, equipment and access required to competently undertake the job<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Diagnoses and implements standard solutions to minimise measurement errors |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN401 Conduct radio frequency measurements | ICTRFN4095A Conduct radio frequency measurements | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN401 Conduct radio frequency measurements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and conduct radio frequency (RF) testing using appropriate equipment and instruments
- measure, record and interpret test results
- monitor work to meet related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss the principles and operation of the following
  - analog and digital modulation methods
  - logarithmic units
  - standard test procedures and test setups
  - transmitter and receiver architectures
- discuss the principles of radio frequency (RF) operation including:
  - instrument and features and types
  - radiation hazards
  - safety practices.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites for RF measurements
- a range of test equipment and items to test
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN402 Select antenna system for radio communications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to interpret industry practices and theories, and select appropriate antenna equipment for small projects or parts of larger projects to a job specification.

It applies to individuals working alone or responsible for a technical team within regulatory authorities or other private and public organisations where they combine technical radio communications skills with broader organisational and administrative skills.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to select antenna system | 1.1 Establish extent of project from design brief or specification within team environment<br>1.2 Obtain and review plans and drawings of existing or proposed installation site |


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| | |
|---|---|
| | 1.3 Determine whether antenna system hardware requires secure hut or shelter<br>1.4 Determine antenna requirements and antenna feedline requirements from design brief or specifications, and research available commercial products<br>1.5 Determine earthing components to meet regulatory and earthing requirements of antenna system<br>1.6 Prepare antenna feedline route to comply with job specifications and regulatory requirements<br>1.7 Identify installation options, and assess against performance requirements and client requirements |
| 2. Select antenna system | 2.1 Evaluate potential antenna system solutions that satisfy required performance, budgetary and regulatory requirements, and are suitable for installation in specified environment<br>2.2 Make recommendations and select optimum antenna system |
| 3. Document antenna system *selection* | 3.1 Document calculations, final specifications and reasons for selection of antenna system<br>3.2 Prepare final report, including documentation and drawings of selected antenna system, and distribute to appropriate persons in accordance with enterprise policies and procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.6, 2.1, 3.2 | • Examines and interprets plans, specifications and data from relevant sources to determine all technical requirements |
| Writing | 3.1, 3.2 | • Uses clear, specific and industry related terminology in appropriate formats to complete and update workplace documentation |
| Numeracy | 1.4, 2.1, 2.2 | • Evaluates and reviews numerical information when evaluating budgetary considerations, test results and technical data, and when converting values to ratios |
| Interact with others | 1.1, 2.2, 3.2 | • Collaborates with others as part of familiar routine activities and contributes to specific activities requiring joint responsibility and accountability |


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| | | |
|---|---|---|
| | | • Understands what to communicate to relevant personnel in routine work situations |
| Get the work done | 1.2, 1.3, 1.5-1.7, 2.1, 2.2 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Identifies and assembles the instruments, equipment and other resources required to competently undertake the job<br>• Uses formal decision making processes with support to clarify goals in more complex, non-routine situations<br>• Gathers information and identifies and evaluates choices against a limited set of criteria<br>• Applies formal problem solving processes, breaking difficult issues into manageable parts and identifying relevant options for action |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN402 Select antenna system for radio communications | ICTRFN4158A Select antenna system for radio communications | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN402 Select antenna system for radio communications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- identify the antenna installation parameters
- select an antenna system required to meet the parameters
- determine the feedline installation from design and specifications
- document the recommendations for the antenna system selection
- comply with specifications and regulatory requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the principles of antenna wave propagation and the impact on antenna array design
- describe the principles of transmission line design and operation, and the impact on antenna design and installation including:
  - allowable loss in dB
  - characteristic impedance
  - mechanical characteristics
  - method of securing
  - radio frequency (RF) connector type
  - weatherproofing.
- describe the process for selecting an antenna design based on the application and performance requirements
- identify and describe a range of antenna systems


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- summarise specific issues related to antenna installations and the creation of particular radiation patterns
- identify and describe the regulatory and industry standards relevant to antenna installations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- antenna resources such as manufacturers' data sheets, specifications and catalogues
- transmission line resources such as manufacturers' data sheets, specifications and catalogues.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN403 Test and repair cellular network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to analyse cell performance and perform diagnostic tests and repairs on sub-elements and subsystems within cellular networks.

It applies to individuals working as field officers and technicians who may be responsible under supervision for small projects or parts of larger projects and for the coordination of projects in sites remote from the organisational headquarters.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to test cellular network equipment | 1.1 Produce alarm list from cellular network subsystem that shows faults or disturbances<br>1.2 Reset sub-element according to manufacturer's specifications<br>1.3 Clear or block alarms and adjust alarm thresholds according to manufacturer's specifications |
| 2. Test cellular network | 2.1 Test parameters influencing cell performance and record |


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| | |
|---|---|
| sub-element equipment | performance for a range of field settings<br>2.2 Test, record and report sub-element performance according to manufacturer's specifications<br>2.3 Run diagnostic test on sub-element<br>2.4 Swap working or executing sub-element with spare or idle unit to allow software upgrades<br>2.5 Swap working or executing sub-element with spare or idle sub-element to allow replacement of hardware |
| 3. Rectify faults in cellular network equipment subsystems | 3.1 Locate faulty sub-element within subsystem and identify fault<br>3.2 Identify faulty parts or equipment and replace or repair according to service agreement<br>3.3 Record fault details and rectification summary<br>3.4 Hand over and sign off with client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 2.2 | • Recognises and interprets information from relevant sources to determine technical specifications |
| Writing | 1.1, 2.1, 2.2, 3.3, 3.4 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients |
| Oral Communication | 3.4 | • Liaises with internal and external personnel about technical requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.1-2.3 | • Evaluates and reviews numerical information when interpreting measurements |
| Get the work done | 1.2, 1.3, 2.1-2.5, 3.1, 3.2 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and |


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| | | |
|---|---|---|
| | | addressing some unexpected issues<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Diagnoses and implements standard solutions to network problems<br>• Understands the purposes and specific functions of common digital systems and uses them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN403 Test and repair cellular network equipment | ICTRFN4159A Test and repair cellular network equipment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN403 Test and repair cellular network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- prepare the cellular network alarm system
- produce an alarm list and use this to locate faults
- test cellular network parameters and performance
- measure output power received around a cell
- run diagnostic tests on sub-elements and subsystems
- locate and repair faulty sub-elements and subsystems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain anti-static protection and its importance and potential effect on cellular network equipment
- summarise cellular antenna installation procedures
- outline electrical concepts and measurements required for cellular network repairs
- explain electromagnetic radiation (EMR) and mitigation
- list the common network components and describe their basic functions
- provide an overview of:
  - the progression of generations of cellular networks
  - features and operating requirements of test equipment
- outline procedures for repairs and swap activities
- summarise test operation of cellular network equipment
- list and describe the tests required for network components


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- describe the importance of voltage levels and polarity
- describe the precautions and actions required to minimise, control or eliminate hazards related to cellular network equipment installations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- a site for mobile phone network tests and measurements
- performance testing software
- relevant legislation and documentation to test and repair network equipment.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN404 Undertake radio communications signals monitoring

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to check radio communications signals for interference management, investigation, licence conditions intelligence and frequency occupancy purposes with discretion to determine appropriate action according to relevant legislation and regulations.

It applies to individuals working as field officers from regulatory authorities or other private and public organisations. They combine technical skills with broader organisational and administrative skills to monitor and action non-compliance of radio communications.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for radio communications | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards, including work health and safety (WHS) issues and possible hazards |


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| | |
|---|---|
| signals monitoring | 1.2 Identify specific triggers that lead to need for monitoring activities<br>1.3 Determine monitoring coordinates as result of client complaint<br>1.4 Determine extent and nature of communications problem through desktop research and relevant information<br>1.5 Enter necessary details into appropriate work management system |
| 2. Plan and organise monitoring activities | 2.1 Determine monitoring activities and responsibilities according to organisational requirements<br>2.2 Determine procedures, timeframes, resources and equipment requirements for self and others according to organisational and task requirements<br>2.3 Obtain resources and equipment and prepare according to organisational and task requirements<br>2.4 Identify communication strategies to make clients aware of their obligations under relevant legislation, codes, regulations and standards according to organisational policies and procedures<br>2.5 Update and review procedural and information guides as required<br>2.6 Implement risk management strategies as required according to set procedures and timelines |
| 3. Undertake monitoring | 3.1 Carry out monitoring activities according to organisational and legislative requirements, including WHS<br>3.2 Use and maintain resources and equipment according to organisational and task requirements<br>3.3 Identify and confirm communications and/or interference problems<br>3.4 Locate position and source of communications and/or interference problems<br>3.5 Identify organisation responsible for communications and/or interference problems<br>3.6 Undertake compliance analysis of unlicensed, unauthorised and non-standard equipment if appropriate<br>3.7 Provide advice to operational and technical subordinate officers according to organisational policies and procedures as required |
| 4. Act on non-compliance | 4.1 Provide information to client and take action as result of failure to achieve compliance according to organisational guidelines and legislative requirements based on seriousness of possible breach<br>4.2 Identify contraventions of compliance requirements and report recommended action according to organisational policies and procedures<br>4.3 Refer serious or complex situations for advice or resolution according to organisational policies and procedures |


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| | |
|---|---|
| | 4.4 Use relevant collection methods to gain information and evidence about elements of each offence to be prosecuted and provide according to legislation, procedures and rules of evidence<br>4.5 Conduct and fulfil court attendance requirements in compliance with organisational guidelines as required<br>4.6 Ensure case is finalised according to court outcomes and organisational guidelines |
| 5. Provide reports and information | 5.1 Interpret requirements of relevant legislation and provide information and advice on technical and operational matters<br>5.2 Advise clients affected by outcomes within limits of privacy legislation<br>5.3 Maintain records and prepare and provide reports according to organisational requirements<br>5.4 Update any compliance management systems with relevant findings and outcomes |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.4, 3.5, 4.4, 5.1 | • Analyses and consolidates information and data from a range of sources, against defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 1.5, 2.5, 3.7, 4.1, 4.2, 5.2-5.4 | • Accurately records and completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology |
| Oral Communication | 1.4, 3.7, 4.2, 5.2 | • Uses collaborative and inclusive techniques, including active listening and questioning and reading of verbal and non-verbal signals, to convey and clarify information and to confirm understanding |
| Numeracy | 2.2 | • Applies numerical modelling skills to identify, analyse and evaluate budgetary information, time durations and human resource allocations |
| Navigate the world | 1.1, 2.1-2.5, 3.1, 3.2, | • Accepts responsibility and ownership for the task and makes decisions on completion |


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| | | |
|---|---|---|
| of work | 3.5-3.7, 4.1-4.6, 5.1-5.3 | parameters and the need for coordination with others<br>• Ensures knowledge of legislative requirements and products is kept up to date to provide accurate information<br>• Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.2, 2.4, 3.3, 3.7, 4.2-4.5 | • Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers<br>• Recognises and accommodates basic differences and priorities of others<br>• Cooperates with others and contributes to work practices where joint outcomes are expected and deadlines are to be met<br>• Identifies and explores differences in a diverse range of people in the work context and makes adjustments to communication in recognition of these differences<br>• Recognises behaviours and triggers that contribute to conflict and implements strategies to moderate conflict |
| Get the work done | 1.1-1.4, 2.1-2.5, 3.1-3.7, 4.1-4.6, 5.1, 5.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem solving processes in determining a solution<br>• Contributes to continuous improvement of current work practices by applying basic principles of analytical and lateral thinking<br>• Uses familiar digital technologies and systems to access information, search and enter data and code, present information and |


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| | | |
|---|---|---|
| | | communicate with others, cognisant of data security and safety |

## Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTRFN404 Undertake radio communications signals monitoring | ICTRFN4174A Undertake radio communications signals monitoring | Updated to meet Standards for Training Packages | Equivalent unit |

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN404 Undertake radio communications signals monitoring

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- comply with site risk control, work health and safety (WHS), environmental, quality and communication requirements
- apply knowledge of appropriate procedures and techniques for conducting radio communications signals monitoring
- perform efficient and effective preparation and monitoring appropriate to a communications environment site
- calibrate, maintain and commission instruments and field equipment
- monitor communications under general direction in a range of different contexts
- respond effectively to different challenges and operational requirements for monitoring, including coping with difficulties, irregularities and breakdowns in routine.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and summarise the legislation, codes of practice and other formal agreements that directly impact on monitoring of radio communications signals including:
  - specifics of what constitutes an offence
  - responses for non-compliance
  - environmental requirements
  - privacy issues
- outline specific WHS requirements that impact on monitoring in terms of safety of self and public safety including:
  - radio frequency (RF) personal protective equipment


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  - electromagnetic radiation (EMR) at RF transmission sites
  - building site induction requirements
  - environmental conditions
- explain specific monitoring procedures for radio communications and relevant organisational policies and procedures
- summarise characteristics of different environments and workplaces where monitoring takes place
- explain radio communications systems used in the relevant work context
- outline specific issues related to antenna performance including:
  - directivity
  - gain
  - height
- summarise the effects of cable attenuation and impedance mismatch
- outline the effects of ionosphere including:
  - high frequency (HF) propagation
  - warning, fadeout and solar flares
  - ionospheric prediction service (IPS)
- explain modulation methods, AM, FM and digital formats
- explain field strength surveys and EMR measurements
- outline the propagation properties of the terrain
- describe the legal process for prosecuting a complaint and undertaking attendance at court
- describe the process and use of direction finding equipment for HF, very high frequency (VHF), ultra high frequency (UHF) and microwave technologies.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites on which monitoring may be conducted
- monitoring and testing equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on monitoring activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN405 Install radio communications base station equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skill and knowledge required to operate transmitters, receivers, feedline, multicoupling, data and voice equipment to connect a station in the very high frequency (VHF), ultra high frequency (UHF) or microwave bands.

It applies to individuals working as field officers from private or public organisations. They combine technical radio communications skills with organisational and administrative skills in a range of commercial and community contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install radio communications base station equipment | 1.1 Assess available installation options against client requirements and relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure<br>1.3 Confirm equipment locations |


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| | |
|---|---|
| | 1.4 Confirm base station equipment listings and manufacturer's and enterprise documents against installation brief<br>1.5 Review installation briefs in consultation with designers or manufacturers<br>1.6 Adjust tools and equipment to manufacturer's specification |
| 2. Install equipment and terminate voice and data cables, power cables and radio frequency (RF) cables | 2.1 Observe anti-static precautions when handling circuit cards and conduct all work in manner that is safe to self, fellow workers and the public<br>2.2 Install racks, frames and shelves as required for data and voice frequency (VF) interface equipment, transmitter and receiver<br>2.3 Position equipment and install according to manufacturer's specifications and design detail<br>2.4 Label equipment, distribution frames and blocks according to enterprise policy<br>2.5 Strip cables and terminate conductors according to manufacturer's specifications<br>2.6 Clean optical fibre connectors using appropriate cleaning techniques<br>2.7 Connect network termination unit (NTU) cables to data and VF interface unit via distribution frame<br>2.8 Connect data and VF cables to radio equipment<br>2.9 Connect digital and analog alarm inputs and outputs to supervisory, control and data acquisition (SCADA) controller<br>2.10 Connect power cables to rectifier, battery rack, circuit breakers and equipment according to manufacturer's and enterprise documents<br>2.11 Use computer or handheld device to program internal software in data and VF interface equipment, and transmitter and receiver<br>2.12 Interconnect multicoupling equipment to antenna feedline and transmitter and receiver units<br>2.13 Mount lightning protection equipment and earth wire according to specification |
| 3. Connect receiver and transmitter multicoupling equipment to antenna feedline | 3.1 Perform distance to fault measurement on antenna feedline<br>3.2 Perform return loss measurement of overall antenna system at transmitter and receiver connector points<br>3.3 Record test results |
| 4. Finalise installation and complete | 4.1 Complete preliminary tests to verify transmitter and receiver operation prior to commissioning<br>4.2 Complete installation report, test results and administrative tasks and |


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| | |
|---|---|
| preliminary tests and administrative tasks | forward to appropriate person according to enterprise policy<br>4.3 Dispose of packaging according to accepted environmental conditions<br>4.4 Notify appropriate person that base station is ready for commissioning and integration |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.6, 2.3-2.5, 2.10, 2.13, 4.3 | • Recognises and interprets enterprise, regulatory and technical information from relevant sources to determine all specifications and frameworks |
| Writing | 1.3, 2.4, 3.3, 4.2, 4.4 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications with clients |
| Oral Communication | 1.3, 1.5, 4.4 | • Liaises with internal and external personnel about technical requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 3.1, 3.2 | • Evaluates and interprets technical data according to predetermined specifications and uses mathematical formulas to solve problems |
| Navigate the world of work | 1.1, 2.1 | • Takes personal responsibility for adherence to legal and regulatory requirements with specific reference to safety<br>• Understands the nature and purpose of own role and associated responsibilities |
| Get the work done | 1.2, 1.6, 2.2, 2.3, 2.5-2.13, 4.1-4.3 | • Determines job priorities of self and others, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account |


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| | | |
|---|---|---|
| | | • Diagnoses faults in different situations and implements standard solutions to network problems<br>• Understands the purposes and specific functions of common digital systems and uses them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN405 Install radio communications base station equipment | ICTRFN4177A Install radio communications base station equipment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN405 Install radio communications base station equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- assess the client and installation requirements
- ensure relevant regulations and standards will be applied
- install radio communications base station equipment
- perform distance to fault measurement on feedline
- perform return loss measurement on feedline
- document and complete installation report.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the following:
  - anti-static precautions
  - radio frequency (RF) radiation hazard awareness
  - network termination unit
  - radio transmitter system
  - radio receiver system
  - multicoupler
  - supervisory, control and data acquisition (SCADA) system inputs and outputs
- outline the operation and purpose of testing equipment
- interpret the meaning of various test results
- identify network element and system specifications


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- outline the principles and performance testing and fault finding techniques of telecommunications networks
- describe the practices and procedures for installation of radio communications equipment for the following:
  - fibre optic connector cleaning techniques
  - computer software installations to various devices
- identify and describe the appropriate test equipment to undertake performance and fault-finding techniques in telecommunications networks including:
  - distance to fault measurement
  - return loss measurement
  - terminate data and voice and RF cable.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites on which base station installation can be conducted
- tools and equipment required for installation
- technical specifications, organisational documentation and requirements for installation and testing.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN406 Maintain hybrid fibre coaxial broadband cable network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to conduct routine maintenance tasks, analysing results and initiating corrective action.

It applies to individuals working as field officers from telecommunications carriers, service providers and contractors. They combine a broad range of optical and radio frequency (RF) technical skills with organisational skills to maintain the hybrid fibre coaxial (HFC) broadband cable network, generally with limited supervision and guidance.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for routine maintenance of | 1.1 Obtain relevant legislation, codes, regulations and standards for given work |


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|---|---|
| broadband cable network | 1.2 Determine HFC network elements requiring maintenance and obtain maintenance details from various HFC manufacturer equipment manuals<br>1.3 Plan detailed routine maintenance schedule and discuss with all relevant personnel<br>1.4 Notify network operations centre (NOC) of proposed maintenance details and maintenance schedule<br>1.5 Assess potential impact of proposed maintenance on clients and network, and plan for minimal possible outage or deferral of maintenance<br>1.6 Obtain necessary tools and resources, and test equipment to undertake maintenance<br>1.7 Ascertain and record recent network stability and network performance |
| 2. Undertake routine HFC network maintenance tasks | 2.1 Conduct routine maintenance tasks according to documented enterprise instructions, following work health and safety (WHS) and environmental requirements, and record results<br>2.2 Protect network from excessive interference or degradation of service during maintenance routines<br>2.3 Monitor relevant alarms during running of maintenance tasks and report incidences to NOC<br>2.4 Escalate unresolved faults according to established enterprise procedure<br>2.5 Conduct performance measurements following routine maintenance schedule |
| 3. Analyse results and initiate corrective action | 3.1 Assess outcomes of performance measurements and maintenance routines to ensure they are according to specification<br>3.2 Analyse identified problems for likely impact and repair within capability, and initiate or escalate repair action where repair is beyond capability<br>3.3 Undertake outage if required in conjunction with NOC and according to prescribed enterprise outage plan<br>3.4 Record problems and incidences in maintenance log for future action as required by maintenance agreement<br>3.5 Verify alarms to ensure maintenance routines did not generate further problems |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1, 2.4, 2.5, 3.3 | • Recognises and interprets enterprise, regulatory and technical information from relevant sources to determine all specifications and frameworks |
| Writing | 1.3, 1.4, 1.7, 2.1, 3.4 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications to relevant personnel |
| Oral Communication | 1.3, 1.4 | • Liaises with a diverse range of personnel to provide advice and guidance using relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.5 | • Interprets numerical information and applies basic calculations to conduct performance measurements |
| Navigate the world of work | 2.1, 2.4 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work, with specific reference to safety and environmental requirements<br>• Seeks advice from others when a situation becomes too complex to manage personally |
| Get the work done | 1.1, 1.2, 1.5-1.7, 2.1-2.3, 3.1-3.5 | • Determines job priorities, resources and equipment and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Responds to typical problems in different situations and implements standard solutions<br>• Understands the purposes and specific functions of common digital systems and uses them effectively to complete routine tasks<br>• Uses experiences to evaluate and identify improvements for future work |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTRFN406 Maintain hybrid fibre coaxial broadband cable network | ICTRFN4178A Maintain hybrid fibre coaxial broadband cable network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN406 Maintain hybrid fibre coaxial broadband cable network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine the performance of and maintenance requirements for the hybrid fibre coaxial (HFC) broadband cable
- prepare a maintenance schedule and planned activities, and arrange resources
- carry out maintenance activities following appropriate procedures and techniques
- perform radio frequency (RF) and optical measurements and analyse results
- administer corrective measures where required, and verify and document actions
- comply with site risk control, work health and safety (WHS), environmental, quality and communication requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- define the following terms: 16 QAM, 64 QAM, 256 QAM
- explain the relevance of alternating current (AC) and direct current (DC) electrical equipment in HFC broadband cable network
- define forward error correction (FEC) and Reed-Solomon Code
- explain bit error ratio (BER) and acceptable values
- interpret constellation diagrams
- describe digital modulation techniques
- summarise Data Over Cable Service Interface Specification (DOCSIS) cable modem characteristics
- discuss future broadband cable network (BCN) and migration to all-optical cable networks
- outline HFC broadband cable network principles, architecture and associated equipment


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- outline the minimum standards allowable in the return path for ingress
- summarise optical fibre characteristics
- explain quadrature phase shift keying (QPSK)
- summarise the services carried on the HFC broadband cable network
- discuss spectrum utilisation of the return path showing location of telephony and data channels, and signalling and test frequencies
- explain video stream transport formats including:
  - digital video broadcasting (DVB) - asynchronous serial interface (ASI)
  - high definition serial digital interface (HD-SDI)
  - motion picture experts group 2 (MPEG-2)
  - standard definition serial digital interface (SD-SDI)
  - modulation error ratio (MER) and acceptable values
- describe the types of amplifier and placement in a HFC broadband cable network
- summarise bi-directional RF amplifier and unidirectional RF amplifier
- explain eye diagram interpretation
- explain frequency spectrum and RF frequency plan HFC broadband cable network
- describe the use of passive devices including filter, attenuator, power inserter, coaxial splitter, coupler, multitap and equaliser
- outline the calculation of overall gain or loss when given signal levels in dBmv
- summarise coaxial transmission line characteristics including cable tilt or slope
- summarise forward path from head end to subscriber showing expected signal levels at key points
- outline power supply requirements in a HFC broadband cable network
- outline the return path from subscriber to head end showing expected signal levels at key points
- discuss RF amplifier characteristics including gain and tilt adjustment, equalisation and overload
- outline forms of ingress and where they may fall in the return path
- describe the set up, operation and interpretation of test equipment for complex tests including:
  - optical time domain reflectometer (OTDR)
  - optical power meter
  - digital signal level meter
  - RF sweep equipment
  - spectrum analyser
- identify the hand and power tools required to assemble and disassemble equipment in pits and in elevated work situations.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites on which HFC maintenance may be conducted
- maintenance tools and test instruments currently used in industry
- relevant regulatory, enterprise and equipment documentation that impact on maintenance activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN501 Test cellular handset enhancements and international roaming agreements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to conduct and analyse the results of testing a subscriber's cellular phone service in a public land mobile network (PLMN) overseas and make recommendations accordingly.

It applies to individuals who work as technical officers and supervisors. They are proficient in the use of specialised testing equipment, are effective communicators and operate with a high degree of autonomy.

No licensing, legislative or certification requirements apply at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to conduct roaming tests | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Identify need for tests from service provider mobile network deployment taskforce<br>1.3 Develop enterprise test procedure according to roaming arrangements and manufacturer test regime |


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| | |
|---|---|
| | 1.4 Arrange access to location where tests are to be conducted according to required procedure<br>1.5 Select resources needed to conduct tests, complying with roaming arrangements<br>1.6 Confirm details of international roaming partners and agreements with partner mobile operators<br>1.7 Advise network operations centre of test details and test schedule |
| 2. Conduct tests and analyse test results | 2.1 Conduct tests according to enterprise test procedure<br>2.2 Analyse recorded test results for roaming compliance and functionality of subscriber identity module (SIM) card and phone enhancements |
| 3. Document results | 3.1 Document details of roaming tests, SIM card validity and functionality of phone enhancements, and make recommendations to appropriate person<br>3.2 Report non-compliance to appropriate person for investigation with international roaming partners and mobile phone manufacturer |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 1.3, 2.1 | • Recognises and interprets enterprise, regulatory and technical information from relevant sources to determine all specifications and frameworks |
| Writing | 1.3, 1.6, 1.7, 3.1, 3.2 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and in written communications to relevant personnel |
| Oral Communication | 1.2, 1.6, 1.7, 3.1, 3.2 | • Provides advice and guidance using relevant language with enterprise personnel, international roaming partners and clients to maintain a client focus and consider client needs<br>• Uses listening and questioning techniques to |


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| | | |
|---|---|---|
| | | confirm understanding |
| Numeracy | 2.1, 2.2 | • Performs mathematical calculations to check, analyse and confirm results of system tests |
| Navigate the world of work | 1.1 | • Takes personal responsibility for adherence to legal and regulatory requirements |
| Get the work done | 1.1, 1.4, 1.5, 2.1, 2.2 | • Determines job priorities, resources and equipment. and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Responds to typical challenges in different situations and implements standard solutions<br>• Uses and investigates new digital technologies and applications to manage and manipulate data, and communicate effectively with others, in a secure and stable digital environment<br>• Uses experiences to evaluate and identify improvements for future work |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN501 Test cellular handset enhancements and international roaming agreements | ICTRFN5097A Test cellular handset enhancements and international roaming agreements | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN501 Test cellular handset enhancements and international roaming agreements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- collect and collate relevant information in preparation for roaming tests
- conduct tests on international roaming capability and functionality of handset enhancements
- analyse results of testing
- make recommendations based on test results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the features and operating requirements of specialised roaming test equipment
- outline information required to operate equipment according to a test specification
- explain legislation, codes of practice and other formal agreements that impact on the work activity
- outline manufacturer’s requirements for safe operation of equipment
- summarise mobile phone network standards and specifications
- explain specific work health and safety (WHS) requirements relating to the activity and site conditions
- describe the testing and analysis process and procedures for cellular handsets.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- a site where tests on handsets and international roaming agreements may be conducted
- testing equipment currently used in industry
- equipment, system manuals, specifications and relevant enterprise policy and documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN502 Test and measure cellular phone and network equipment performance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to analyse test results and recommend modifications to the network.

It applies to individuals working as field officers and supervisors from telecommunications carriers, service providers, contractors and other public or private organisations who perform measurements during equipment upgrades or during commissioning, acceptance testing and routine maintenance on cellular network equipment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to test cellular phone and network equipment | 1.1 Obtain and follow relevant legislation, codes, regulations and standards<br>1.2 Scope work by obtaining work details from appropriate personnel and arrange for site access to comply with security |


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| | |
|---|---|
| | arrangements<br>1.3 Evaluate manufacturer's technical documentation and network procedures to plan test schedule for cellular network<br>1.4 Verify calibration of test equipment to ensure that tested cellular equipment is compliant<br>1.5 Prepare cellular equipment for testing according to manufacturer's test procedure<br>1.6 Notify operational staff of test and measurement schedule to ensure minimal impact on cellular network |
| 2. Test and measure cellular phone and network equipment | 2.1 Work safely following work health and safety (WHS) and environmental requirements for given work, identifying hazards and using personal protective equipment<br>2.2 Configure network equipment for testing and set options to record test results<br>2.3 Block or mask alarms that may be triggered and interfere with test program<br>2.4 Run performance measurement software with options set and record test results<br>2.5 Re-establish alarms and normal operational status at conclusion of tests, and notify appropriate personnel of completion of test schedule |
| 3. Analyse measurement and prepare evaluation report | 3.1 Analyse results of performance tests and measurements and determine performance level of cellular equipment and compatibility with network<br>3.2 Prepare evaluation report, making recommendations on network modifications or changes to configurations settings for improved quality of service<br>3.3 Present test results and evaluation report to appropriate personnel according to enterprise policy |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.3, 1.5, 3.3 | • Recognises and interprets regulatory and technical information from relevant sources to determine all |


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| | | |
|---|---|---|
| | | specifications and frameworks |
| Writing | 1.6, 2.4, 2.5, 3.2 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and when presenting information to work associates, supervisors, team members and clients |
| Oral Communication | 1.2, 1.6, 2.5, 3.3 | • Liaises with internal and external personnel about technical requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 3.1 | • Evaluates and interprets technical data and results according to predetermined specifications |
| Navigate the world of work | 2.1 | • Understands the nature and purpose of own role and associated responsibilities<br>• Takes personal responsibility for adherence to legal and regulatory requirements, with specific reference to safety |
| Get the work done | 1.1-1.5, 2.2-2.5, 3.1 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Understands the purposes and specific functions of common digital systems and uses them effectively to complete routine tasks<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Diagnoses faults in different situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN502 Test and measure cellular phone | ICTRFN5148A Test and measure cellular | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| and network equipment performance | phone and network equipment performance | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN502 Test and measure cellular phone and network equipment performance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and coordinate test activities and equipment
- test cellular phone and network equipment according to test procedure
- analyse test results
- report and make recommendations on performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the features and operating requirements of cellular test equipment, including the digital cellular test set, spectrum analyser and radio frequency (RF) power meter
- explain network components, their functions and approved specifications
- provide detailed information about transmission lines, transmitter and receiver architecture and associated cellular network
- provide detailed information about cellular antenna and feedlines, and their impact on mobile spectrum interference
- explain testing network components
- outline the types of adjustments that need to be made when measuring cellular transmission
- summarise the types of networks that will influence the transmission on the radio path and/or the transmission line.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites on which cellular network testing may be conducted
- test equipment currently used in industry
- manufacturer's and enterprise technical documentation
- relevant regulations and standards.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN503 Evaluate and analyse radio frequency signal coverage plots

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to combine technical radio communications skills with organisational and administrative skills to generate and evaluate coverage maps in a range of commercial and community contexts for radio and television broadcasting, radio base station coverage, and point-to-point links.

It applies to individuals who are technically proficient and who work for regulatory authorities and private and public organisations. They may be responsible for small projects or parts of larger projects, and for the coordination and direction of small technical groups.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and prepare for coverage | 1.1 Prepare for given work according to relevant legislation, work health and safety (WHS), codes, regulations and standards |


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| | |
|---|---|
| prediction | 1.2 Arrange access to site according to required procedure<br>1.3 Establish type of coverage required<br>1.4 Determine specifications and minimum acceptable signal level or timing signal delay within coverage area<br>1.5 Use prediction software specific to enterprise<br>1.6 Verify mapping coordinate system to be used<br>1.7 Create custom antenna pattern files representative of expected antenna type for type of coverage required |
| 2. Load data into software program and create coverage plot | 2.1 Select and load system parameters<br>2.2 Select and load antenna elements or antenna pattern files<br>2.3 Select suitable propagation model settings applicable to study<br>2.4 Load appropriate clutter properties<br>2.5 Create coverage plot using appropriate plot options settings |
| 3. Analyse coverage plot outcomes | 3.1 Evaluate initial coverage plot against initial specifications<br>3.2 Adjust system parameters and antenna elements until coverage plot is within specifications<br>3.3 Compare measured signal strength at various locations with predicted values<br>3.4 Use measured data to correct and fine tune model<br>3.5 Evaluate range of possible solutions and make appropriate recommendations to ensure transmission meets operational requirements |
| 4. Complete documentation | 4.1 Tabulate results<br>4.2 Prepare report with final recommendations |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4 | • Recognises and interprets regulatory and technical information from relevant sources to determine all specifications and frameworks |


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| | | |
|---|---|---|
| Writing | 3.5, 4.1, 4.2 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and when presenting recommendations to relevant personnel |
| Oral Communication | 1.2, 1.6, 3.5 | • Liaises with internal and external personnel about technical, operational and commercial matters using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.4, 3.3, 3.4 | • Evaluates and interprets technical data to convert measurements and comprehend results |
| Navigate the world of work | 1.1 | • Takes personal responsibility for adherence to legal and regulatory requirements with specific reference to safety |
| Get the work done | 1.2, 1.3, 1.5-1.7, 2.1-2.5, 3.1, 3.2, 3.5 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Understands the ways in which digital systems and tools are used and recognises all operational applications<br>• Takes responsibility for routine decision making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• Diagnoses faults in different situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN503 Evaluate and analyse radio frequency | ICTRFN5179A Evaluate and analyse radio frequency signal | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| signal coverage plots | coverage plots | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN503 Evaluate and analyse radio frequency signal coverage plots

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and coordinate activities to produce coverage plots using appropriate software settings
- generate:
  - a radio frequency (RF) signal coverage plot
  - a path profile for a point-to-point link
- evaluate, analyse and make recommendations on antenna installation specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain antenna and propagation theory
- explain antenna array theory
- summarise various mapping coordinate systems and their datums
- outline propagation models and their limitations in various environments
- outline specific issues related to antenna installations and the creation of particular radiation patterns.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:


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- a computer facility on which coverage plots and paths may be generated
- propagation prediction software
- a digital terrain database.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to evaluate, analyse and make recommendations at the system design level on antenna installation specifications.

It applies to individuals working as technical officers and engineers who undertake mobile network performance measurements and report on mobile capacity enhancement to senior management.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Monitor capacity of cellular mobile network | 1.1 Monitor traffic levels from network management system<br>1.2 Use approved enterprise plans to identify planned network growth<br>1.3 Obtain client forecast data from marketing<br>1.4 Apply identified data against capacity trigger criteria |


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| | |
|---|---|
| | 1.5 Determine coverage and cell parameters |
| 2. Make recommendations relating to capacity changes | 2.1 Identify requirements for additional capacity<br>2.2 Recommend changes or additions to frequency parameters and submit to planning personnel<br>2.3 Assess capacity of transmission path, switch resources and recommend improvements, noting transmission medium<br>2.4 Manipulate traffic through switch parameter settings as a means of relieving traffic congestion<br>2.5 Determine cost of proposed changes and undertake studies of appropriate return on investment (RoI) |
| 3. Assess capacity changes | 3.1 Organise tests and studies to ensure that increased capacity adequately caters for traffic flow<br>3.2 Make recommendations for further change to network should increased capacity not meet need |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2 | • Recognises and interprets technical information from relevant sources to determine all specifications and frameworks |
| Writing | 2.2, 2.3, 3.2 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and when presenting recommendations to relevant personnel |
| Oral Communication | 3.2 | • Liaises with internal and external personnel about technical and operational matters using specific and relevant language and listening<br>• Uses questioning techniques to confirm understanding |
| Numeracy | 1.4, 2.3, 2.5 | • Undertakes mathematical calculations to project costs and calculate returns on investments<br>• Uses advanced mathematics methods to manipulate complex numerical data |
| Get the work done | 1.1, 1.3-1.5, | • Determines job priorities and works logically and |


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| | | |
|---|---|---|
| | 2.1, 2.3, 2.4, 3.1 | systematically to undertake clearly defined and familiar tasks<br>• Understands the ways in which digital systems and tools are used and recognises all operational applications<br>• Takes responsibility for decision making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Diagnoses faults in different situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network | ICTRFN6098B Monitor the capacity of and recommend changes to the cellular mobile network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- source and analyse relevant data to prepare a plan indicating growth potential and recommendations for meeting growth within timeframes
- use tools and software packages for forecasting and measurement
- identify site or channel capacity, relevant network growth and forecasting growth.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain blocking, non-blocking and grade of service
- explain Erlang B measurements
- summarise features and operating requirements of test equipment
- outline field measurements for cell traffic capacity
- explain the information required to:
  - analyse and interpret statistical data as applied to teletraffic measurement
  - prepare and conduct a capacity measurement
- summarise legislation, codes of practice and other formal agreements that directly impact on radio communications site transmission
- outline the following including:
  - transmission lines
  - transmitter and receiver architecture and their impact on radio communications traffic
- outline switching architecture with specific reference to space and time switching


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- outline the types of adjustments that need to be made to procedures to meet the requirements of particular sites and environmental conditions
- explain typical issues and challenges that occur in telecommunications cellular capacity design and how these may be addressed.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites with cellular mobile network
- capacity monitoring data and equipment.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN602 Produce and evaluate architecture designs for WiMAX networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to specify the design of Worldwide Interoperability for Microwave Access (WiMAX) network architecture.

It applies to individuals working as information and communication technologies (ICT) technicians, designing and operating WiMAX networks in wireless core and access networks. Wireless convergence technology in telecommunications particularly applies to the deployment of fast wireless broadband access.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to produce architecture designs for | 1.1 Review WiMAX specification 802.16 protocol structure for point-to-point (backhaul) and point-to-multipoint (end user) topologies, and identify requirements of network |


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| | |
|---|---|
| wireless broadband | 1.2 Assess technical characteristics and functions of network elements in WiMAX network<br>1.3 Evaluate advantages of modulation techniques used in wireless access technologies<br>1.4 Compare characteristics and operating principles of multiplexing techniques used at physical layer of wireless access technologies |
| 2. Design architectures for proposed fixed and mobile WiMAX network | 2.1 Develop proposed network topology for fixed (802.16d) WiMAX network, showing relationship of network elements<br>2.2 Develop proposed network topology for mobile (802.16e) WiMAX network showing relationship of network elements<br>2.3 Evaluate design considerations between fixed and mobile WiMAX network and produce design specifications<br>2.4 Determine appropriate multiple-antenna system in WiMAX design by considering their benefits<br>2.5 Produce report on architecture design for WiMAX network |
| 3. Evaluate network management products | 3.1 Research, analyse and evaluate current network management products<br>3.2 Produce evaluation report on effectiveness of network management products that could be used to manage WiMAX network elements |
| 4. Produce network designs for possible implementation | 4.1 Compare WiMAX with other competing wireless technologies and their interoperability<br>4.2 Investigate inclusion of wireless fidelity (wi-fi) in the design architectures as complementary technology<br>4.3 Use latest technical specifications and pricing to evaluate range of architecture design solutions<br>4.4 Determine support and training requirements needed<br>4.5 Produce implementation document on WiMAX architecture configurations and designs, and present to appropriate person for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 3.1 | • Recognises and analyses complex technical information to evaluate a broad range of features of current security issues and best practice in security, equipment and procedures |
| Writing | 2.1-2.3, 2.5, 3.2, 4.3, 4.5 | • Uses clear, specific and industry related terminology to complete and update workplace documentation and when presenting recommendations to relevant personnel |
| Oral Communication | 4.3, 4.5 | • Liaises with personnel about technical, operational and commercial matters using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 4.3 | • Performs mathematical calculations to analyse pricing data and statistics |
| Get the work done | 1.2-1.4, 2.4, 4.1 4.2 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and understands the potential of new technology<br>• Uses systematic, analytical processes in complex situations, gathering relevant information and identifying and evaluating options against predetermined criteria<br>• Diagnoses faults in different situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause of a problem rather than the symptom |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN602 Produce and evaluate architecture designs for WiMAX | ICTRFN6171A Produce and evaluate architecture designs | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| networks | for WiMAX networks | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN602 Produce and evaluate architecture designs for WiMAX networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- review and assess the Worldwide Interoperability for Microwave Access (WiMAX) communication architecture, hardware, protocols and networking systems for a new design
- integrate other wireless technologies
- analyse and evaluate competing wireless technologies
- design viable WiMAX network solutions
- assess network performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the client business domain
- explain current industry accepted network hardware and software products and their general features and capabilities
- explain the design implications of the following:
  - current industry accepted WiMAX network protocols
  - remote user issues
  - management systems
  - WiMAX network design
  - WiMAX network traffic evaluation
- explain current industry security products, devices and procedures and their general features and capabilities


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- outline theoretical concepts of current industry network development and design methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- IEEE 802.16 standards for WiMAX
- client requirements
- technical specifications
- expected traffic volume
- vendors and vendor offerings and pricing
- information on a range of IT business solutions
- future organisational business processes
- a budget for architecture designs for WiMAX networks.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN801 Produce a radio link budget

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse technical performance of fixed and mobile radio systems, and plan and calculate link budgets.

It applies to individuals working as telecommunications engineers who take responsibility for establishing layout of a digital radio system to minimise transmission loss and optimise system performance.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Radio Frequency Networks

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Critically analyse suitability of radio systems | 1.1 Critically analyse spectral efficiency of functional elements of mobile radio systems for determining optimal frequency utilisation<br>1.2 Critically analyse features of radio systems to evaluate effectiveness of a particular application<br>1.3 Compare features and specifications of antennas used in radio systems to assist with radio link budget<br>1.4 Report on suitability of radio systems, including |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | recommendations to improve network performance |
| 2. Calculate a radio link budget | 2.1 Calculate path loss using variables in appropriate propagation models for a power link budget<br>2.2 Evaluate power link budget against allowable power margin specifications<br>2.3 Evaluate modulation types and spectral efficiency<br>2.4 Confirm radio power link budget achieves specified reliability |
| 3. Complete evaluation and planning documentations | 3.1 Complete an evaluation report on performance of radio systems with recommendations on system improvements<br>3.2 Document processes used to determine optimal power link budget for a radio system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 1.4, 3.1, 3.2 | • Uses clear, specific and industry-related terminology to complete and update specific workplace documentation and when presenting recommendations to relevant personnel |
| Oral Communication | 1.4 | • Liaises with personnel about technical, operational and commercial matters using specific and relevant language, using listening and questioning techniques to confirm understanding |
| Numeracy | 2.1, 2.2, 2.4 | • Analyses, synthesises and performs calculations using highly embedded mathematical information in a broad range of tasks and texts |
| Get the work done | 1.1-1.3, 2.1-2.3 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and understands potential of new technology<br>• Uses systematic, analytical processes in complex |


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| | | |
|---|---|---|
| | | situations, gathering relevant information and identifying and evaluating options against predetermined criteria<br>• Diagnoses faults in different situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN801 Produce a radio link budget | ICTRFN7182B Produce a radio link budget | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PC's to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN801 Produce a radio link budget

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse signal degradation characteristics of radio paths and calculate power budgets for various distances and antenna heights versus transmitted power
- research constraints imposed by mobile phone frequency allocations and simulate carrier to interference radiation patterns around a cell site
- create evaluation report on radio system performance
- document processes used to determine power link budget.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain high frequency (HF), very high frequency ( VHF), ultra high frequency (UHF) and microwave receiving techniques
- summarise modulation methods:
  - AM
  - FM
  - digital
- outline multiplexing systems
- summarise operation of transmitters and receivers
- explain organisational policies and procedures
- summarise personal safety issues
- explain propagation methods
- summarise radio communications systems
- weigh factors affecting radio frequency (RF) path loss


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- summarise RF technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Radio Frequency Networks industry and include access to:

- a telecommunications operations site
- mobile telephony devices and equipment
- networked computers and relevant software.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN802 Analyse a cellular mobile network system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to study the detailed architecture and operation of individual cellular mobile elements and develop a plan to integrate emerging cellular technologies.

It applies to individuals working as telecommunications engineers or senior technical officers as they prepare to upgrade to next generation mobile networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research mobile network systems and interfaces to interconnected networks | 1.1 Analyse interfaces between cellular mobile network and clients, including public switched telephone network (PSTN) and internet to validate interoperability of individual systems<br>1.2 Research latest generation of mobile radio systems and develop plan for integration of emerging cellular technologies to meet future |


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| | |
|---|---|
| | demands and client expectations |
| 2. Analyse constraints imposed by frequency spectrum allocations | 2.1 Analyse techniques to increase system capacity for fixed spectrum bandwidth<br>2.2 Plan frequency allocation for cellular network from derived specifications<br>2.3 Develop simulation that plots carrier to interference radiation pattern for given cell geometry in reflective environment |
| 3. Analyse operations of major subsystems of cellular network | 3.1 Evaluate major subsystem functions of cellular network and analyse subsystem components to determine capability for upgrades<br>3.2 Research and report how major subsystems interface to other network subsystems<br>3.3 Simulate transmission path for cellular network |
| 4. Analyse system capability | 4.1 Simulate traffic flow measurements in microcellular environment<br>4.2 Produce analytical report on cellular mobile convergence with plan for cellular mobile system integration to existing networks |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 3.2 | • Interprets complex technical information in a variety of forms and applies the knowledge gained to evaluate different types of technical data and compare with theoretical values and approved specifications |
| Writing | 1.2, 3.2, 4.2 | • Uses clear, specific and industry related terminology to complete and update specific workplace documentation and when presenting recommendations to relevant personnel |
| Oral Communication | 3.2 | • Liaises with personnel about technical and operational issues using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.2, 3.3, 4.1 | • Interprets the results of complex numerical measurements |


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| | | |
|---|---|---|
| Get the work done | 1.1, 2.1-2.3, 3.1, 3.3, 4.1 | • Operates from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues as the work progresses<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and understands the potential of new technology<br>• Uses systematic, analytical processes in complex situations, gathering relevant information and identifying and evaluating options against predetermined criteria<br>• Undertakes testing procedures in different situations, adapts procedures and modifies activities depending on operational contingencies, risk situations and environments<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTRFN802 Analyse a cellular mobile network system | ICTRFN8180B Analyse a cellular mobile network system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN802 Analyse a cellular mobile network system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan a frequency allocation for a cellular network
- analyse techniques to increase system capacity for a fixed spectrum bandwidth
- develop a plan for integration of emerging cellular technologies
- analyse the interfaces between a mobile network and clients
- research and report the interfacing of major subsystems to other network subsystems
- produce an analytical report on cellular mobile convergence with a plan for cellular mobile system integration to existing networks.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate allocations and bandwidth requirements of cellular systems
- investigate efficiency and system capacity given the spectrum allocation, number of channels required and grade of service
- describe equipment subsystem diagnosis and repair procedures
- summarise features and differences between major frequency bands and their allocation of licences
- compare features and operating requirements of cellular test equipment
- outline key features of cellular mobile radio systems
- summarise major element functions of a mobile radio system
- explain major frequency bands and their allocation of licences
- describe a microcellular system
- explain minimising latency


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- outline network components and their functions
- provide a detailed summary of transmission lines, transmitter and receiver architecture
- summarise radio spectrum in use, specifying restrictions and characteristics
- describe radio frequency (RF) and electromagnetic energy (EME) hazards
- investigate and evaluate antenna performance and mobile components, and their impact on mobile spectrum interference
- explain spectrum efficiency
- describe system configuration procedures
- outline testing network components
- summarise the types of adjustments that need to be made when measuring cellular transmission
- outline the types of networks that will influence the transmission on the radio path and/or transmission line.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- sites on which cellular network analysis, research and simulation may be conducted
- test equipment currently used in industry
- manufacturer's and enterprise technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTRFN803 Analyse a satellite communications system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required for a new installation project, an upgrade of capacity or technology in an existing network or as a result of convergence to next generation networks (NGN).

It applies to individuals working as supervisors and engineers, who plan, design and implement satellite communications systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – radio frequency networks

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research satellite communication systems | 1.1 Research satellite applications with various orbit types for assessing their spatial positioning for specific purposes<br>1.2 Analyse and report on architecture, major subsystems and critical components in communication systems of recently launched commercial satellite |


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| | |
|---|---|
| | 1.3 Research and report on multiple access techniques and their typical applications |
| 2. Analyse uplink and downlink variables | 2.1 Determine uplink and downlink criteria that impact on carrier to noise ratio<br>2.2 Determine up/down link criteria that impact on baseband signal to noise ratio<br>2.3 Determine critical parameters of a satellite system<br>2.4 Research common types of baseband signal processing, and their spectral and noise improvement parameters for determining criteria for link budget evaluations |
| 3. Conduct link budget analysis | 3.1 Produce satellite link budget and calculate link margin for satellite system with specified modulation types<br>3.2 Analyse relationship between bit error ratio (BER) for given energy per bit per noise power density (Eb/No) and forward error correction (FEC) parameter for determining operational performance of link |
| 4. Analyse properties of geostationary satellites | 4.1 Calculate look angles for geostationary satellite from any receiving location<br>4.2 Research and report on frequency re-use in conjunction with polarisation selection and use of spot beams<br>4.3 Analyse and specify major features of very small aperture terminal (VSAT) systems, and calculate link reliability in high rainfall regions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.4, 4.2 | • Interprets complex technical information in a variety of forms and applies the knowledge gained to solve complex problems by making informed judgements and assumptions |
| Writing | 1.2, 1.3, 3.1, 4.2 | • Uses clear, specific and industry related terminology to prepare detailed reports containing recommendations for relevant personnel |


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| | | |
|---|---|---|
| Numeracy | 2.4, 3.1, 3.2, 4.1, 4.3 | • Uses and applies knowledge about space and shape, including angle properties, when analysing variables<br>• Determines link budgets by selecting antennae size, power requirements, link availability and bit error rate (BER) by solving complex mathematical formulas |
| Get the work done | 1.2, 2.1-2.3, 3.1, 3.2, 4.1, 4.3 | • Gathers and analyses data and seeks feedback to improve plans and processes<br>• Makes high impact decisions in a complex and diverse environment, using input from a range of sources<br>• Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities and decision making strategies where appropriate<br>• Operates from a broad conceptual plan, developing the operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues as the work progresses<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus on the root cause<br>• Takes responsibility for high impact decisions in complex situations involving many variables and constraints |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTRFN803 Analyse a satellite communications system | ICTRFN8181B Analyse a satellite communications system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTRFN803 Analyse a satellite communications system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- analyse satellite communications system architecture
- produce a satellite link budget and calculate link margin for a range of digital modulation types
- calculate the look angles for a geostationary satellite from any receiving location
- analyse and specify the major features of very small aperture terminal (VSAT) systems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and perform antenna calculations including:
  - gain
  - beamwidth
  - polarisation
  - effective isotropic radiated power (EIRP)
- define bit error rate (BER) and how it affects satellite communications
- outline carrier and noise ratio
- explain constellation and eye diagrams
- outline distance to satellite and typical delays
- summarise frequency spectrum (satellite bands)
- explain gain-to-noise-temperature G/T ratio
- outline geostationary orbit
- explain link budget calculation


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- explain look angle calculations
- describe low earth orbiting (LEO) satellites
- evaluate the following modulation types suitable for satellite communications:
  - n-FSK:
    - 2FSK
    - 4FSK
  - n-PSK:
    - 2PSK
    - 4PSK
    - 8PSK
    - 16PSK
  - n-QAM:
    - 16 QAM
    - 256QAM
- define spread spectrum techniques including:
  - direct sequence
  - frequency hopping.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – radio frequency networks field of work and include access to:

- a site on which satellite analysis may be conducted
- data, calculators and appropriate software tools.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD401 Develop and present feasibility reports

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research and analyse potential system solutions and present a feasibility report to the client.

It applies to individuals required to investigate potential solutions within the context of an information and communications technology (ICT) project.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm client requirements | 1.1 Analyse client requirements to determine project scope and the problem or opportunity faced by the business<br>1.2 Document client requirements, project scope, related problems and sources of information<br>1.3 Confirm requirements and scope with the client |
| 2. Develop high-level alternative scenarios | 2.1 Compare future client requirements with current requirements<br>2.2 Develop and document feasible solutions for client |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements<br>2.3 Explore and document the feasibility of each solution<br>2.4 Examine alternatives against project constraints |
| 3. Prepare and publish feasibility report | 3.1 Develop a feasibility report that describes client requirements and project scope, analyses alternative scenarios, and provides recommendations<br>3.2 Submit feasibility report to appropriate person for project approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.4 | • Reads and interprets specifications and other documentation from a variety of sources, and consolidates information to determine client requirements |
| Writing | 1.2, 1.3, 2.2, 2.3, 3.1 | • Prepares and produces a document that conveys complex relationships between alternative solutions to achieve business outcomes<br>• Uses technical report format and terminology appropriate to the stakeholders |
| Oral Communication | 1.3 | • Determines and confirms client requirements, using collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals to convey and clarify information and to confirm understanding |
| Numeracy | 2.1-2.4, 3.1 | • Applies financial modelling skills to identify, analyse and evaluate budgetary information, time durations and human resource allocations |
| Interact with others | 1.3, 3.2 | • Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.1, 2.1, 2.2, 2.4, 3.1 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, |


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| | | |
|---|---|---|
| | | efficiencies and effectiveness<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation, and formal and analytical thinking<br>• Uses and investigates new digital technologies and applications to manage and manipulate data, and communicate effectively with others in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD401 Develop and present feasibility reports | ICASAD401A Develop and present feasibility reports | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD401 Develop and present feasibility reports

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and confirm services required
- document the project scope
- develop solutions to client’s requirements that fit within the constraints
- document the feasibility report according to requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the client business domain
- outline the system's current functionality
- explain the role of stakeholders and the degree of stakeholder involvement
- describe and compare TWO or more current industry systems development methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- client requirements
- report writing template
- client expectations brief


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- information on a range of information and communications technology (ICT) business solutions
- future organisational business processes
- budgets for scenarios
- outcomes of the business analysis process.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD501 Model data objects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to understand business operations, identify entities and data, diagrammatically represent their relationships, and prepare a data model.

It applies individuals who have a broad range of analytical, technical and communication skills and who work within broad but established parameters.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify entities and relationships | 1.1 Analyse business data to understand operations<br>1.2 Identify boundaries of the system<br>1.3 Identify entities, attributes, data types and relationships of data<br>1.4 Review business rules to determine impact<br>1.5 Document relationships in an entity relationship diagram |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Develop normalisation | 2.1 Identify suitable business data<br>2.2 Undertake normalisation of business data and document results<br>2.3 Compare normalisation results with entity relationship diagram<br>2.4 Reconcile differences between data |
| 3. Validate model | 3.1 Validate data model with client<br>3.2 Resolve issues or recommendations<br>3.3 Document completed data model<br>3.4 Submit to client for final approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.3, 2.4 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.5, 2.2, 2.4, 3.3, 3.4 | • Prepares and produces diagrammatic models and associated documents that convey complex relationships between data<br>• Documents outcomes and changes to discussions, using industry relevant terminology and recognised symbols |
| Oral Communication | 3.1-3.4 | • Participates in verbal exchanges by listening and questioning clients to elicit information, resolve issues, and obtain final product and work outcome approval |
| Interact with others | 3.1, 3.2, 3.4 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Elicits feedback and provides feedback to others |
| Get the work done | 1.1-1.4, 2.1, 3.2, 3.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision making |


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| | | |
|---|---|---|
| | | processes for complex and non-routine situations<br>• Uses and investigates new digital technologies and applications to manage and manipulate data and communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD501 Model data objects | ICASAD501A Model data objects | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD501 Model data objects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- document client business requirements
- construct an entity relationship diagram
- construct and document a data model
- normalise the model
- validate the model.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- fully describe:
  - database identifiers and their impact on database usability
  - normalisation rules and processes
  - type hierarchies, including sub-types, super-types and root-types related to development of structured data types
  - validation procedures and processes
- describe the function and features of:
  - an approach to data modelling, such as the entity-relationship model
  - keys, e.g. unique keys, composite keys, primary keys and primary index
  - time stamps related to the use of keys
  - user defined types, structured types, reference types and user defined functions
  - data types and their application
- summarise the particular business domain.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- client's business requirements
- special purpose tools, equipment and materials
- industry software packages
- computer aided software engineering (CASE) tools
- entity relationship diagrams.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD502 Model data processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to gather process data and business information in order to model data processes within an organisation.

It applies to individuals who can apply a broad range of technical knowledge and skills within the context of a complex project.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop scope of model | 1.1 Identify relevant data processes and sources of information<br>1.2 Identify information gathering method and modelling methodology to be used<br>1.3 Document modelling information gathered<br>1.4 Validate modelling information with client |
| 2. Gather process data | 2.1 Identify business functions and collect process data using chosen method |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Identify external events, procedures and results<br>2.3 Identify processes and required decomposition |
| 3. Develop and validate data model | 3.1 Model process data according to modelling methodology<br>3.2 Validate process model with client to determine inaccuracies<br>3.3 Incorporate identified changes, as required<br>3.4 Review business rules to determine impact on process models and change as required<br>3.5 Validate completed process models with client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.3, 3.4 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.3, 1.4, 3.3-3.5 | • Prepares and produces diagrammatic models and associated documents that convey complex relationships between data |
| Oral Communication | 1.4, 3.2, 3.5 | • Determines and confirms client requirements using collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals to convey and clarify information and confirm understanding |
| Interact with others | 1.4, 3.2, 3.5 | • Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.1, 1.2, 2.1-2.3, 3.1, 3.4 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies and applications to manage and manipulate data, and |


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| | | |
|---|---|---|
| | | communicate effectively with others in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD502 Model data processes | ICASAD502A Model data processes | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD502 Model data processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify data processes that represent the client's business reality
- model data processes according to industry and organisation standards
- complete documentation of the data model.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss modelling rules and conventions with reference to naming processes and events
- outline features and functions of process mappers
- explain features of data analysis, particularly in determining process flows
- describe processes and techniques, using logical design concepts related to designing process models.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- client’s business requirements
- special purpose tools and equipment
- industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD503 Minimise risk of new technologies to business solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify and plan to minimise the business and technological risks associated with business solutions that utilise new technologies.

It applies to individuals who are responsible for performing complex technical analysis to provide solutions to complex problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish the risk context | 1.1 Review organisational and technical environment and proposed business solution<br>1.2 Identify scale, importance and complexity of project risks<br>1.3 Establish acceptable and unacceptable levels of risk and consequences for the solution |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Identify the impact of risks against the business environment<br>1.5 Determine and document proposed actions to insure against identified generic risks |
| 2. Conduct risk analysis | 2.1 Conduct a risk analysis to determine the likelihood of risks identified<br>2.2 Rank risk factors according to the impact and likelihood of occurrence<br>2.3 Develop contingency plans to mitigate identified risks<br>2.4 Document risk analysis and contingencies in a risk management plan<br>2.5 Implement risk management plans and undertake awareness training to inform stakeholders |
| 3. Monitor risks | 3.1 Establish feedback channels to warn of unforeseen and identified risks<br>3.2 Conduct regular reviews to identify new risks and update established risks<br>3.3 Document changes to risk management plans as appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.2 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.5, 2.1, 2.3, 2.4, 3.3 | • Prepares documentation that expresses ideas, explores complex issues and is constructed logically, succinctly and accurately |
| Navigate the world of work | 1.4 | • Seeks to improve policies and procedures to better meet organisational goals and mitigate risk |
| Interact with others | 2.5, 3.1, 3.2 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts |


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| | | |
|---|---|---|
| | | • Elicits feedback and provides feedback to others |
| Get the work done | 1.2-1.5, 2.1-2.5 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision making processes for complex and non-routine situations<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation, and formal and analytical thinking<br>• Uses and investigates new digital technologies and applications to manage and manipulate data and communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD503 Minimise risk of new technologies to business solutions | ICASAD503A Minimise risk of new technologies to business solutions | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD503 Minimise risk of new technologies to business solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop procedures that identify where risk occurs
- identify measures to be taken to treat the risk
- document a risk management plan
- implement risk management plan
- establish a risk review procedure.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline business process design
- explain business supply chain
- describe copyright and intellectual property relating to new technologies
- identify and describe how business sites fit into corporate strategy
- explain the purpose of user analysis and customer relationship management software
- describe risk management process and planning strategies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- analysis software


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- business website
- customer relationship model
- requirements documentation
- site server and software
- updated or new technology
- user analysis
- web servers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD504 Implement quality assurance processes for business solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to define and implement quality assurance processes and procedures to ensure that business solutions achieve quality performance expectations.

It applies to senior information and communications technology (ICT) staff in a range of areas that are required to ensure quality in ICT systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan business quality assurance process | 1.1 Determine business quality performance expectations and benchmark standards<br>1.2 Develop business standards and guidelines for achieving each benchmark<br>1.3 Allocate strategic quality responsibilities for meeting business standards and guidelines according to business procedures |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Document expectations, standards and benchmarks in a quality plan based on business documentation standards<br>1.5 Identify appropriate quality management systems guides, including quality management plan for complex activities<br>1.6 Communicate quality policy and procedures to appropriate stakeholders |
| 2. Implement quality policies and plans | 2.1 Write quality policy for business directive<br>2.2 Create quality management plan for business solution<br>2.3 Distribute quality management plan to key people for feedback<br>2.4 Analyse feedback to determine if corrective action needs to be taken<br>2.5 Make changes to quality management plan, if required, to incorporate corrective action<br>2.6 Allocate key quality tasks and functions to appropriate person as per the quality management plan<br>2.7 Establish and document a quality reporting and monitoring program<br>2.8 Check and document skills of staff to ensure that they are able to meet the quality standards required |
| 3. Control quality assurance processes | 3.1 Implement quality performance guidelines, procedures and processes as per the quality management plan<br>3.2 Obtain stakeholder feedback, including client satisfaction to monitor implementation of quality processes<br>3.3 Monitor quality process performance as per the quality management plan<br>3.4 Report on monitoring of quality performance to key decision makers<br>3.5 Identify and record breakdowns in the system and create corrective action requests<br>3.6 Take immediate corrective action, where necessary |
| 4. Improve quality | 4.1 Collect, analyse and measure quality performance results against benchmarks to determine if quality standards are being met<br>4.2 Determine the frequency of quality breakdowns through corrective action requests in order to identify whether defects are isolated incidents or require a wider analysis and corrective action<br>4.3 Determine corrective actions to be taken and assign |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | responsibility for taking the action where appropriate<br>4.4 Identify who will be responsible for quality improvement<br>4.5 Implement corrective action solutions and measure performance<br>4.6 Review and adjust benchmark standards periodically in order to improve quality performance<br>4.7 Document quality performance results and disseminate the information to stakeholders as appropriate<br>4.8 Review business procedures at predetermined schedules as part of a management review process and quality reporting function |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.6, 3.5, 4.1, 4.6, 4.8 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.1, 1.2, 1.5, 2.1, 2.2, 2.5, 2.7, 2.8, 3.4, 4.6, 4.7 | • Accurately records information and prepares correspondence and documentation using clear language and organisational formats and protocols<br>• Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information |
| Oral Communication | 1.4, 3.4, 4.7 | • Uses collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals to convey and clarify information and to confirm understanding |
| Navigate the world of work | 1.1-1.3, 1.5, 2.1, 2.5, 2.6, 3.1, 3.3, 4.8 | • Modifies or develops organisational policies and procedures to comply with legislative requirements and organisation goals<br>• Seeks to improve policies and procedures to better meet organisational goals<br>• Contributes to roles and responsibilities of self and others |
| Interact with | 1.3, 1.4, 2.3, 2.6, | • Selects, implements and seeks to improve protocols |


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| | | |
|---|---|---|
| others | 2.8, 3.2, 3.4, 3.5, 4.3, 4.4, 4.7 | governing communications to clients and co-workers in a range of work contexts<br>• Implements strategies for a diverse range of colleagues and clients in order to build rapport and foster strong relationships<br>• Elicits feedback and provides feedback to others in order to improve self or workgroup behaviours |
| Get the work done | 1.2-1.3, 2.2, 2.4, 2.7, 3.1-3.3, 3.5, 3.6, 4.1-4.8 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause of a problem rather than the symptom<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation, and formal and analytical thinking<br>• Uses and investigates new digital technologies and applications to manage and manipulate data, and communicate effectively with others in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD504 Implement quality assurance processes for business solutions | ICASAD504A Implement quality assurance processes for business solutions | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD504 Implement quality assurance processes for business solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and implement appropriate processes and procedures to ensure quality expectations are met
- constructs quality standards that can be measured quantitatively and applied universally
- document quality assurance standards
- monitor and review quality assurance standards and processes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain copyright and intellectual property relating to information and communications technology (ICT) systems development
- outline features of business models
- explain the relevance to the development of quality assurance and quality management plans of:
  - International Organization for Standardization (ISO)
  - International Electrotechnical Commission (IEC) standards
  - Australian Standards (AS)
- describe quality concepts applied to ICT
- outline quality improvement processes
- explain techniques of technical performance measurement
- explain the implications of website architecture, including operating system on:
  - privacy
  - accessibility


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  - equity
- describe the structure of a quality assurance management plan and list the standards that may be included.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- relevant quality standards
- data related to the business model
- organisational guidelines that apply to quality standards.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD505 Develop technical requirements for business solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the outcomes, skills and knowledge required to develop technical and related requirements that will enable business solutions to be implemented in an organisation.

It applies to individuals who are responsible for performing complex technical analysis to complete a range of tasks and provide solutions to complex problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research business requirements | 1.1 Define hardware and software requirements of the business solution<br>1.2 Determine model of business<br>1.3 Determine technical specifications for business<br>1.4 Establish interface requirements for end users and external parties |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Document business solution requirements for approval from stakeholders<br>1.6 Determine information and communications technology (ICT) security requirements |
| 2. Analyse the impact of technical solutions | 2.1 Identify hardware, software and network requirements<br>2.2 Identify software solutions to build business platform<br>2.3 Identify processes to be changed by the business solution<br>2.4 Determine the effect changes will have on the value or supply chain<br>2.5 Research a range of security protocols suitable for business solutions<br>2.6 Document impact of changes and submit to relevant stakeholders |
| 3. Develop and test business solutions | 3.1 Implement hardware and software solutions for testing purposes<br>3.2 Identify training needs to update personnel skills<br>3.3 Plan timelines and allocation of resources for business solution<br>3.4 Develop performance standards and benchmark results<br>3.5 Determine costs involved to implement business solution<br>3.6 Document the business solution |
| 4. Secure sign-off of validated solution | 4.1 Test, validate and document results of the business solution<br>4.2 Provide results to appropriate person for verification<br>4.3 Obtain sign-off on business solution |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 1.6, 2.1-2.4 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |


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| | | |
|---|---|---|
| Writing | 1.5, 2.6, 3.4, 3.6, 4.1 | • Accurately records and completes organisational documents and correspondence, using clear language and correct spelling, grammar and terminology<br>• Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information |
| Numeracy | 3.5 | • Performs mathematical calculations to analyse financial information, costs and values to accurately determine cost of implementation |
| Navigate the world of work | 2.3, 3.2 | • Seeks to improve policies and procedures to better meet organisational goals<br>• Contributes to roles and responsibilities of self and others |
| Interact with others | 1.5, 2.6, 4.2, 4.3 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Implements strategies for a diverse range of colleagues and clients in order to build rapport and foster strong relationships |
| Get the work done | 1.1-1.4, 1.6, 2.1-2.5, 3.1-3.4, 4.1, 4.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation, and formal and analytical thinking<br>• Uses and investigates new digital technologies and applications to manage and manipulate data and communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD505 Develop technical requirements for business | ICASAD505A Develop technical requirements for business | Updated to meet Standards for Training | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| solutions | solutions | Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD505 Develop technical requirements for business solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- document the internal and external technical environments required to provide a business solution
- produce a list of technical requirements
- produce an impact statement of the technical solution
- evaluate the functionality of the business solution.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline business process design
- list copyright and intellectual property relating to information and communications technology (ICT) systems development
- explain the customer and business liaison processes
- describe the implications of technology connectivity
- list and describe the potential business solutions
- explain the prevailing corporate strategies that may influence business solutions.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- business model


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- business requirements documentation
- customer relationship model
- hardware, software and network requirements
- software solutions to build business platform
- processes to be changed by the business solution
- security protocols suitable for business solutions
- special purpose tools, equipment, materials and industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD506 Produce a feasibility report

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to recommend the preferred scenario from a range of feasible options offered to the client.

It applies to individuals who are responsible for researching, planning and designing solutions for complex information and communications technology (ICT) projects.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm client requirements | 1.1 Confirm client requirements to determine project scope and the problem context or opportunity faced by the business<br>1.2 Review documented client requirements, project scope, related problems and sources of information<br>1.3 Confirm requirements and scope with the client |
| 2. Examine and review alternatives | 2.1 Ensure that future client requirements are considered<br>2.2 Research and document feasible solutions for client |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements<br>2.3 Ensure that the feasibility of each solution has been assessed, including constraints |
| 3. Prepare and publish feasibility report | 3.1 Prepare a feasibility report<br>3.2 Ensure that the completed feasibility report covers client requirements, project scope and analysis of alternative scenarios<br>3.3 Confirm the recommendation of the preferred scenario<br>3.4 Present feasibility report to appropriate person for project approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.2, 3.2 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 2.2, 3.1 | • Writes, edits and proofreads reports to ensure clarity of meaning, and accuracy and consistency of information<br>• Accurately records and completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology |
| Oral Communication | 1.1, 1.3, 3.3, 3.4 | • Uses collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals to convey and clarify information and to confirm understanding |
| Interact with others | 1.1, 1.3, 2.1, 3.4 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Elicits feedback and provides feedback to others<br>• Recognises the diversity in people and manages this diversity to improve workplace relations and practices |
| Get the work done | 2.1-2.3, 3.1-3.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness |


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| | | |
|---|---|---|
| | | • Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation, and formal and analytical thinking |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD506 Produce a feasibility report | ICASAD506A Produce a feasibility report | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD506 Produce a feasibility report

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review documentation and confirm client requirements for the project
- confirm the scope with the client
- document alternative solutions for the project
- prepare a feasibility report ensuring it meets client requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain and list the client requirements
- describe the role of stakeholders and the degree of stakeholder involvement in developing a feasibility report
- list the system's current functionality and improvement options
- outline TWO or more current industry systems development methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- contributions to a feasibility report
- client requirements
- report writing template
- client expectations brief


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- information on a range of information and communications technology (ICT) business solutions
- future organisational business processes
- budgets for scenarios
- outcomes of the business analysis process
- financial modelling
- business context
- use of special purpose tools, equipment, materials and industry software packages.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD601 Perform ICT-focused enterprise analysis

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to provide an enterprise analysis and determine the possible information and communications technology (ICT) solutions available for a given initiative or for long-term planning.

It applies to individuals who combine high-level management, business and technical skills necessary to manage complex analysis efforts within the ICT industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define business need | 1.1 Analyse business goals and objectives, and link to measures to allow objective assessment of achievement<br>1.2 Investigate issues to determine the business problem or opportunity<br>1.3 Identify possible ICT solutions to the business problem<br>1.4 Determine desired outcomes to enable evaluation of proposed |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | solutions |
| 2. Assess capability gaps | 2.1 Determine current capabilities of the enterprise and relate to the desired objectives<br>2.2 Identify new capabilities required to achieve the desired future state and assess gaps<br>2.3 Test assumptions to facilitate appropriate decision making |
| 3. Determine solution approach | 3.1 Generate potential ICT options to meet the business objectives<br>3.2 Generate valid assumptions and recognise constraints that may affect the choice of solutions<br>3.3 Assess and rank solution approaches to facilitate selection |
| 4. Define solution scope | 4.1 Define solution scope in terms of the major features or functions to be included<br>4.2 Explain the implementation approach in terms of how the chosen solution will deliver the solution scope<br>4.3 Delineate major business and technical dependencies |
| 5. Define business case | 5.1 Identify benefits of the recommended solution in terms of both qualitative and quantitative gains to the enterprise<br>5.2 Estimate the total net cost of the solution<br>5.3 Perform initial risk assessment<br>5.4 Agree how identified costs and benefits will be assessed and evaluated |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.3, 3.3, 4.3 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.1-1.4, 2.1-2.3, 3.1-3.3, 4.1-4.3, 5.1-5.4 | • Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information<br>• Prepares documentation that expresses ideas, explores |


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| | | |
|---|---|---|
| | | complex issues and is constructed logically, succinctly and accurately |
| Numeracy | 5.1-5.3 | • Uses highly developed numeracy skills to interpret complex financial information and perform calculations to make estimates of costs |
| Navigate the world of work | 1.1, 2.1, 4.1, 4.2 | • Works autonomously, making high-level decisions to achieve and improve organisational goals<br>• Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are met |
| Interact with others | 5.4 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact |
| Get the work done | 1.2-1.4, 2.1-2.3, 3.1-3.3, 4.2, 4.3, 5.1, 5.3, 5.4 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Gathers and analyses data, and seeks feedback to improve plans and processes<br>• Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision making strategies where appropriate<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation's goals |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD601 Perform ICT-focused enterprise analysis | ICASAD601A Perform IT-focused enterprise analysis | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | title. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD601 Perform ICT-focused enterprise analysis

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- examine in detail a business situation and document a comprehensive business case for a proposed solution that addresses:
  - business need
  - required capabilities
  - solution scope
  - risk assessment
  - cost estimates
  - most feasible approach.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the business analysis processes, procedures and techniques
- discuss market trends and best practices to assist in identifying business opportunities
- explain technology and technology solution patterns.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- appropriate policies


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- current business analysis practices and tools
- legislation
- reports and plans prepared for projects.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD602 Conduct knowledge audits

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to conduct a knowledge management audit.

It applies to individuals in senior management positions who are responsible for high-level analysis of organisational strategies and practices.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Conduct a knowledge needs analysis | 1.1 Identify current and future directions of the business<br>1.2 Identify knowledge and skills required to support the current business activities<br>1.3 Identify knowledge and skills required to support future business directions |
| 2. Analyse the knowledge inventory | 2.1 Produce knowledge questionnaires to request information from staff about corporate knowledge |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Identify explicit knowledge currently resident in data sources, such as policies, procedures, databases and libraries, and record its location<br>2.3 Identify the accessibility, aim and integrity of the knowledge<br>2.4 Identify the frequency of update of this knowledge, its previous versions, and its backup status<br>2.5 Identify implicit knowledge currently resident in informal sources and organisational knowledge |
| 3. Chart the knowledge flow | 3.1 Examine how knowledge flows from one data store to another within the organisation, and how this flow is facilitated or impeded by policies, such as access control or records management policies<br>3.2 Examine the procedures that facilitate the flow of knowledge within the organisation and their ease of use<br>3.3 Identify the corporate and individual attitudes to knowledge within the organisation |
| 4. Produce a knowledge audit report | 4.1 Analyse the results of the knowledge audit<br>4.2 Document findings and present to the appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2, 2.4, 2.5, 3.2, 4.1 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 2.1, 4.2 | • Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information<br>• Prepares documentation that expresses ideas, explores complex issues, and is constructed logically, succinctly and accurately |
| Navigate the world of work | 2.2, 3.1-3.3 | • Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are met |


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| | | |
|---|---|---|
| | | • Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements in order to implement and manage change |
| Interact with others | 3.3, 4.2 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact<br>• Develops and implements communications strategies with internal and external persons in order to build rapport<br>• Influences and fosters a collaborative culture, facilitating a sense of commitment and workplace cohesion |
| Get the work done | 1.1-1.3, 2.3-2.5, 3.1, 3.3, 4.1 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Makes high-impact decisions in a complex and diverse environment, using input from a range of sources<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation's goals |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD602 Conduct knowledge audits | ICASAD602A Conduct knowledge audits | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD602 Conduct knowledge audits

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- document the identified explicit and implicit knowledge in an organisation
- establish and record the knowledge required to meet current needs
- establish and record the forecast knowledge required to meet future needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain how the organisation’s business, policies, procedures and structure influence corporate knowledge
- describe the difference between implicit and explicit knowledge
- analyse and identify concepts of risk management planning and processes
- explain the requirements for the design and development of questionnaires and the procedures for analysis of completed questionnaires
- explain the reporting mechanisms that influence a knowledge audit
- describe the key tools and models of project management.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- an organisation
- data sources and staff


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- relevant tools, equipment and materials
- relevant industry software.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD603 Plan and monitor business analysis activities in an ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish and manage information and communications technology (ICT) business analysis activities in a medium-to-large organisation.

This unit applies to individuals who require high-level management, business and technical skills to manage complex analysis efforts within the information and communications technology (ICT) industry, often as part of business critical ICT projects.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan business analysis approach | 1.1 Establish organisational process needs and objectives that apply to the initiative, and if necessary, define the requirements that the process must meet<br>1.2 Review existing organisational standards, including standards, guidelines and processes relating to the current initiative |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Tailor an approach to the needs of a specific business analysis initiative, according to organisational standards if required<br>1.4 Engage with the appropriate stakeholders to determine how the work will be completed<br>1.5 Plan the execution of business activities |
| 2. Conduct stakeholder analysis | 2.1 Recognise stakeholders who may be affected by the business need or a new solution<br>2.2 Assess stakeholder attitudes toward, and influence over, the initiative<br>2.3 Decide which stakeholders will have authority over business analysis activities<br>2.4 Instigate regular reviews to identify new stakeholders or changed positions as clarity of business needs evolve |
| 3. Plan business analysis activities | 3.1 Decide the type of project or initiative and the business analysis deliverables<br>3.2 Determine the scope of work for business analysis activities<br>3.3 Approve which activities the business analyst will perform and when<br>3.4 Develop estimates for business analysis work |
| 4. Plan business analysis communication | 4.1 Determine how best to receive, distribute, access, update and escalate information from project stakeholders<br>4.2 Decide how best to communicate with each stakeholder according to stakeholder needs and constraints to communication |
| 5. Plan requirements management process | 5.1 Establish a requirements repository for storing requirements, including those under development, those under review, and approved requirements<br>5.2 Assess the need and process for requirements traceability, based on relevant factors<br>5.3 Conclude which requirements attributes will be captured<br>5.4 Determine the process for requirements change management |
| 6. Manage business analysis performance | 6.1 Determine which metrics will be used to measure the work performed by the business analyst<br>6.2 Report performance in an appropriate format, based on the needs of the project<br>6.3 Assess performance measures to determine where problems |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | may be occurring in executing business analysis activities<br>6.4 Identify preventative or corrective actions as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 6.3 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.1, 2.2, 5.1, 6.2 | • Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information<br>• Prepares documentation that expresses ideas, explores complex issues, and is constructed logically, succinctly and accurately |
| Oral Communication | 2.2 | • Determines and confirms stakeholder requirements, using collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals to convey and clarify information and to confirm understanding |
| Numeracy | 3.4 | • Performs mathematical calculations to analyse financial information, costs and values to accurately determine estimates |
| Navigate the world of work | 1.2, 1.3 | • Works autonomously, making high-level decisions to achieve and improve organisational goals<br>• Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements in order to implement and manage change |
| Interact with others | 1.4, 2.1, 2.2, 2.4, 3.3, 4.2 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact<br>• Develops and implements communications strategies with internal and external stakeholders in order to build rapport and achieve desired outcomes |
| Get the work | 1.1, 1.3, 1.5, 2.1, | • Plans strategic priorities and outcomes within a |


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| | | |
|---|---|---|
| done | 2.4, 3.1-3.3, 4.1, 4.2, 5.1-5.4, 6.1, 6.4 | flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision making strategies where appropriate |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD603 Plan and monitor business analysis activities in an ICT environment | ICASAD603A Plan and monitor business analysis activities in an IT environment | Updated to meet Standards for Training Packages.<br><br>Minor edit to competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD603 Plan and monitor business analysis activities in an ICT environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan and monitor business analysis activities, including determining an approach and processes that are appropriate to the circumstances
- determine business analysis deliverables, tasks and estimates
- plan business analysis communications
- determine metrics for monitoring business analysis work
- assess business performance and identify measures to rectify.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the business analysis process, procedures and techniques
- describe project management process, procedures and techniques
- identify and apply risk management strategies
- overview technology and technology solution patterns
- describe communication constraints that may impact on stakeholders.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- special purpose materials
- industry software packages.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD604 Manage and communicate ICT solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage and communicate requirements for new information and communications technology (ICT) systems to a broad and diverse audience.

This unit applies to individuals who require high-level management, business and technical skills to manage complex analysis within the information and communications technology (ICT) industry, often as part of business critical ICT projects.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage identified client ICT requirements and scope of solution | 1.1 Establish baseline client ICT requirements and change control processes to track changes to requirements and solution scope<br>1.2 Resolve issues and conflicts that emerge during final stages of identifying and analysing requirements<br>1.3 Determine how requirements will be presented for review<br>1.4 Secure approval of requirements from those stakeholders who |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | have the appropriate authority |
| 2. Manage requirement relationships and dependencies | 2.1 Examine and organise the set of requirements and record the dependencies and relationships for each<br>2.2 Perform impact analysis to assess or evaluate the impact of a change<br>2.3 Deploy requirements management tools as necessary |
| 3. Maintain requirements for re-use | 3.1 Identify requirements that the organisation will use in the long term<br>3.2 Name and define requirements available for future re-use |
| 4. Prepare requirements package | 4.1 Decide which formats are appropriate for a particular project and its stakeholders<br>4.2 Prepare requirements package according to organisational need |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.2 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.4, 2.1, 3.2, 4.2, 5.1, 5.2 | • Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information<br>• Prepares documentation and correspondence using clear language, correct spelling and terminology, and ensuring accuracy of information |
| Oral Communication | 1.4, 5.1, 5.2 | • Uses collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals to convey and clarify information and to confirm understanding |
| Navigate the world of work | 4.2, 5.2 | • Works autonomously, making high-level decisions to achieve and improve organisational goals<br>• Develops and implements strategies that ensure organisational policies and procedures are being met |


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| | | |
|---|---|---|
| Interact with others | 1.2, 1.4, 5.1, 5.2 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact<br>• Influences and fosters a collaborative culture, facilitating a sense of commitment and workplace cohesion<br>• Shares knowledge, information and experience openly as an integral part of the working relationship<br>• Recognises potential for conflict and, working with others, seeks to develop organisational processes to deal with conflict |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1, 3.2, 4.1 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision making strategies where appropriate<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation's goals |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD604 Manage and communicate ICT solutions | ICASAD604A Manage and communicate IT solutions | Updated to meet Standards for Training Packages.<br><br>Minor edit to competency title. | Equivalent unit |


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# Links

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# Assessment Requirements for ICTSAD604 Manage and communicate ICT solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish processes to:
  - trace requirements
  - control and track changes to requirements
  - scope solutions
- manage requirement relationships
- package and communicate requirements according to what is appropriate for a project or stakeholder group.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain conflict resolution and issue management techniques to handle possible changes to solution scope
- outline requirements management and traceability processes
- list and apply techniques for managing version control and configuration.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- a simulated or workplace project in a medium-to-large enterprise


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- observation of the candidate carrying out business analysis work
- reports and plans prepared for the projects
- a portfolio of the project work to be undertaken.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD605 Elicit ICT requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the outcomes, skills and knowledge required to undertake and engage stakeholders in the key task of defining information and communications technology (ICT) requirements.

This unit applies to individuals required to ensure that requirements elicited are complete, clear, correct and consistent, and can serve as a solid foundation for the solution to the business needs.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for elicitation | 1.1 Define the specific activities and the planned dates for a particular elicitation activity<br>1.2 Build a detailed schedule<br>1.3 Communicate the plan to affected parties |
| 2. Conduct elicitation | 2.1 Conduct elicitation activity |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| activity | 2.2 Monitor captured requirements against business objectives to prevent scope creep<br>2.3 Capture and document requirements attributes<br>2.4 Update process metrics as the basis for future planning |
| 3. Document elicitation results | 3.1 Record elicitation outcomes in the appropriate form<br>3.2 Present elicitation outcomes to stakeholders and obtain agreement |
| 4. Confirm elicitation results | 4.1 Review the documented outputs with the stakeholders<br>4.2 Confirm that own understanding reflects stakeholder intentions and preferences |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.3, 4.1 | • Analyses and consolidates information and data from a range of sources against defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 1.1, 1.3, 2.3, 2.4, 3.1, 3.2 | • Accurately records information and prepares correspondence and documentation using clear language and organisational formats and protocols<br>• Records outcomes of discussions |
| Oral Communication | 1.3, 2.1, 3.2, 4.1, 4.2 | • Determines and confirms stakeholder requirements, using collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals to convey and clarify information and to confirm understanding |
| Interact with others | 1.3, 2.1, 3.2, 4.2 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact<br>• Develops and implements communications strategies with internal and external persons in order to build rapport |
| Get the work | 1.1, 1.2, 2.2, 2.4, 4.2 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse |


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| | | |
|---|---|---|
| done | | environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve processes<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation's goals |

# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD605 Elicit ICT requirements | ICASAD605A Elicit IT requirements | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD605 Elicit ICT requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- construct and implement requirements for elicitation activities
- select and apply elicitation techniques that are appropriate to the situation
- document requirements and obtain stakeholder sign-off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain conflict resolution and issue management techniques
- provide an overview of negotiation and consensus strategies
- summarise techniques to elicit and manage the gathering of requirements
- formulate risk management strategies with regard to requirements gathering, staff management and proposed systems
- outline scope management and change control processes
- describe version control and configuration management approaches.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- appropriate policies
- current business analysis tools
- appropriate legislation


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- reports and plans prepared for the projects
- a portfolio of the project work to be undertaken.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD606 Analyse stakeholder requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse stated requirements, determine potential solutions, and define possible features available to meet stakeholder needs.

This unit applies to individuals who require high-level management, business and technical skills necessary to manage complex analysis efforts within the information and communications technology (ICT) industry, often as part of business critical ICT projects.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prioritise requirements | 1.1 Determine the basis for prioritisation of requirements<br>1.2 Resolve challenges in facilitating the prioritisation |
| 2. Organise requirements | 2.1 Articulate requirements at an appropriate level of abstraction<br>2.2 Devise appropriate models to describe the solution scope, based on informational needs of stakeholders |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Document dependencies and inter-relationships among requirements |
| 3. Specify and model requirements | 3.1 Develop textual requirements<br>3.2 Generate matrices to convey or support identified requirements<br>3.3 Create models to document and communicate requirements and improvement opportunities |
| 4. Define assumptions and constraints | 4.1 Agree on assumptions to be defined and clarified as requirements are understood<br>4.2 Document and examine business constraints to identify options no longer available<br>4.3 Recognise and examine technical constraints that may restrict design or mandate standards to be followed |
| 5. Verify requirements | 5.1 Establish characteristics of requirements' quality<br>5.2 Undertake verification activities iteratively throughout the requirements analysis process |
| 6. Validate requirements | 6.1 Identify and define stakeholder requirement benefit assumptions so that associated risks can be managed<br>6.2 Generate measurable evaluation criteria to assess success of requirements benefit post implementation<br>6.3 Assign business value of requirements to assist in identifying candidates for elimination<br>6.4 Determine requirement dependencies for benefits realisation<br>6.5 Evaluate alignment with business case and opportunity cost to assist validation and decision making |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.3, 5.2, 6.1, 6.4, 6.5 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |


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| | | |
|---|---|---|
| Writing | 2.1, 2.3, 3.1-3.3, 4.2 | • Prepares documentation that expresses ideas, explores complex issues, and is constructed logically, succinctly and accurately<br>• Documents outcomes and changes to discussions, using industry relevant terminology<br>• Writes, edits and proofreads documents to ensure clarity of meaning, and consistency of information |
| Oral Communication | 2.1 | • Presents complex information in formal situations, using clear and convincing language, tone and pace appropriate for the audience and purpose |
| Numeracy | 6.2, 6.3 | • Performs mathematical calculations to interpret and manipulate complex numerical information |
| Navigate the world of work | 4.2 | • Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are being met |
| Interact with others | 2.2, 4.1, 6.3 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact<br>• Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships |
| Get the work done | 1.1, 1.2, 2.2, 4.1, 4.3, 5.1, 5.2, 6.1-6.5 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities, and decision making strategies where appropriate<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation’s goals |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD606 Analyse stakeholder | ICASAD606A Analyse stakeholder | Updated to meet Standards | Equivalent unit |


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| Code and title<br>current version | Code and title<br>previous version | Comments | Equivalence status |
|---|---|---|---|
| requirements | requirements | for Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD606 Analyse stakeholder requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- define, specify and prioritise stakeholder and solution requirements to a standard that would allow construction of a business solution
- verify and validate the requirements to ensure necessary quality, and support for stakeholder needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe business rules analysis
- explain data flow diagramming
- outline data, organisation and process modelling, and their relevant business and technical constraints
- explain functional decomposition
- describe risk management strategies
- explain the purpose of using scenarios, stories and case studies
- describe scope modelling.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:

- appropriate policies, current business analysis practices and tools


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- relevant legislation
- special purpose tools, equipment and materials
- industry software packages
- reports and plans prepared for projects
- a portfolio of projects to be undertaken.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAD607 Manage assessment and validation of ICT solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to determine the best information and communications technology (ICT) solution and facilitate its implementation.

This unit applies to individuals who are required to assess and validate business processes, organisational structures, outsourcing agreements, software applications, and any other component of the solution to ensure that the overall solution delivers maximum value to stakeholders.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems analysis and design

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assess proposed solution | 1.1 Rank solution options on business value, and advantages and disadvantages of alternatives<br>1.2 Generate and consider solution options and additional capabilities |
| 2. Allocate requirements | 2.1 Allocate requirements to solution components to maximise |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | business value<br>2.2 Facilitate allocation of requirements to a specific project release, phase or iteration |
| 3. Assess organisational readiness | 3.1 Conduct cultural assessment<br>3.2 Conduct operational or technical assessment<br>3.3 Perform stakeholder impact analysis |
| 4. Define transition requirements | 4.1 Evaluate old system actual data and metadata<br>4.2 Develop options for managing ongoing work during transition to the new solution<br>4.3 Participate in organisational change management recommendations or processes as required |
| 5. Validate solution | 5.1 Investigate defective solution outputs<br>5.2 Assess defects and issues |
| 6. Evaluate solution performance | 6.1 Realise value delivered by the solution<br>6.2 Validate solution metrics<br>6.3 Decide solution replacement or elimination |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.1-3.3, 4.1, 5.1, 6.2 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.1, 1.2, 3.2, 3.3 | • Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information<br>• Prepares documentation that expresses ideas, explores complex issues, and is constructed logically, succinctly |
| Navigate the world of work | 4.3 | • Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Monitors and reviews the organisation's policies, procedures and adherence to requirements in order to |


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| | | |
|---|---|---|
| | | implement and manage change |
| Interact with others | 3.1, 4.3 | • Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships<br>• Understands diversity and seeks to integrate diversity into the work context, for managing change, making decisions and achieving shared outcomes |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 4.1-4.3, 5.1, 5.2, 6.1-6.3 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation's goals |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAD607 Manage assessment and validation of ICT solutions | ICASAD607A Manage assessment and validation of IT solutions | Updated to meet Standards for Training Packages.<br><br>Minor edit to competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAD607 Manage assessment and validation of ICT solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- categorise benefits and disadvantages of various solution options
- assess cultural impact of different solutions
- compare transition requirements between solutions
- analyse output variances between solutions
- remove inappropriate solutions from list
- recommend remaining solutions in priority order
- validate solutions
- confirm solution metrics and evaluate the solution.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the impact of the business environment with regard to proposed information and communications technology (ICT) solutions
- describe and implement techniques for assessing options and validating solutions
- explain and apply organisational change management
- outline the principles of solution performance metrics.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems analysis and design field of work, and include access to:


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- appropriate policies
- current business analysis practices and tools
- relevant legislation
- special purpose tools, equipment and materials
- industry software packages
- reports and plans prepared for projects
- portfolio of project work to be undertaken.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS201 Maintain inventories for equipment, software and documentation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to record and store details of software, hardware and technical documentation.

It applies to frontline technical support personnel who maintain equipment, software and related technical documentation in a small to large office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Document and update inventory | 1.1 Maintain hardware inventory that creates a profile or description of each piece of equipment<br>1.2 Maintain software inventory and update licences as required, particularly when upgrading software<br>1.3 Record and organise storage of user documentation or technical manuals |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Store technical documentation | 2.1 Store hardware, software and equipment that is not in use, according to technical manuals<br>2.2 Ensure technical documentation is stored securely<br>2.3 Access and disseminate technical documentation as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.2, 2.3 | • Accesses and interprets textual information from a range of sources to record, manage and maintain information |
| Writing | 1.1, 1.2, 1.3, 2,2 | • Records organisation, software and client technical information, and sequences writing to produce cohesive text for reference |
| Oral Communication | 1.3, 2.1 | • Participates in verbal exchanges of basic ideas that elicit views, opinions and feedback from others |
| Navigate the world of work | 1.2-1.3, 2.1-2.3 | • Understands roles and responsibilities for task and makes basic decisions on work completion parameters |
| Get the work done | 1.1-1.3, 2.1-2.3 | • Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeking assistance in setting priorities<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS201 Maintain inventories for equipment, software and documentation | ICASAS201A Maintain inventories for equipment, software and documentation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS201 Maintain inventories for equipment, software and documentation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- update and maintain software, equipment and technical documentation inventory, according to identified storage and retrieval policy and procedures
- comply with software licensing requirements, according to vendor specifications
- access and update inventories.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe technical documentation processes
- describe common software licensing requirements
- describe inventory principles and procedures
- explain current industry practices related to storage of hardware, software and technical documentation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- personal computer, equipment and materials
- industry and inventory management software packages
- organisational documentation
- enterprise intranet.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS202 Apply problem-solving techniques to routine ICT malfunctions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply problem-solving techniques to determine the origin of a routine malfunction and plan for its resolution.

It applies to individuals who work under supervision to provide frontline technical support, diagnose technical problems and determine potential solutions. These are key components of this support role.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify routine problems | 1.1 Identify hardware, software, user or procedural problem areas to appropriate person in the organisation<br>1.2 Define and determine problem to be investigated<br>1.3 Identify and document current conditions of the hardware, software, user or problem |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Research solutions to routine problems | 2.1 Identify potential solutions to problem<br>2.2 Develop, document, rank and present recommendations about possible solutions to appropriate person for decision |
| 3. Recommend solutions to problems | 3.1 Plan implementation of solutions<br>3.2 Plan evaluation of implemented solutions<br>3.3 Document recommended solution and submit to appropriate person for confirmation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.2, 3.1-3.3 | • Interprets familiar textual information from a range of sources to identify misleading information, compare technical specifications, and identify solutions to new and emerging issues |
| Writing | 1.3, 2.2, 3.3 | • Develops materials and resources using simple vocabulary to record information in a sequential manner for client engagement as well as internal reference |
| Oral Communication | 1.1, 2.2 | • Participates in verbal exchanges of familiar ideas using questioning and active listening to elicit information and feedback from others |
| Navigate the world of work | 1.1- 1.3, 2.1, 2.2, 3.1-3.3 | • Understands roles and responsibilities for task and makes basic decisions on work completion parameters |
| Interact with others | 1.3, 2.2 | • Identifies and takes steps to follow accepted communication practices and protocols |
| Get the work done | 1.1-1.3, 2.1, 2.2, 3.1-3.3 | • Plans and implements routine tasks, aiming to complete them efficiently<br>• Initiates standard diagnostic procedures when responding to familiar and unfamiliar problems within immediate context, and seeks input from others when problems remain unresolved<br>• Understands the purposes, specific functions and key |


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| | | |
|---|---|---|
| | | features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS202 Apply problem-solving techniques to routine ICT malfunctions | ICASAS202A Apply problem-solving techniques to routine IT malfunctions | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS202 Apply problem-solving techniques to routine ICT malfunctions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the root cause of a routine malfunction
- identify solutions
- produce documentation that recommends solutions to problems
- follow established procedures
- refer unresolved problems to support persons.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify current industry hardware and software products and services
- identify current industry maintenance, service and helpdesk practices, processes and procedures
- identify current operating systems
- identify current industry standard diagnostic tools
- describe common computer malfunctions and resolutions.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- a workstation and industry software packages
- detailed information relating to organisational processes and procedures


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- information on a range of Information and Communications
- Technology (ICT) business solutions.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS203 Connect hardware peripherals

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to connect hardware peripherals according to instructions.

It applies to individuals employed in an information and communications technology (ICT) support role who are required to solve technical hardware and software incompatibility conflicts and problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm client requirements | 1.1 Identify and confirm peripheral requirements of client according to organisational standards<br>1.2 Document client requirements and peripherals needed, and report findings to the appropriate person according to organisational standards<br>1.3 Verify client requirements with appropriate person according to organisational standards and reporting procedures |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Take action to ensure client support expectations are covered by vendor warranty and support services |
| 2. Obtain required peripherals | 2.1 Obtain peripherals under instruction from appropriate person<br>2.2 Enter details of peripherals into equipment inventory according to organisational standards<br>2.3 Validate that contents of delivered components and physical contents match the packing list and resolve discrepancies if necessary<br>2.4 Store peripherals according to vendors guidelines |
| 3. Connect hardware peripherals | 3.1 Verify timeframe for installation schedule with client<br>3.2 Remove old peripherals with minimal disruption to clients if they are to be replaced, taking into account environmental considerations and work health and safety (WHS) standards<br>3.3 Connect new peripherals with minimum disruption to clients, taking into account operating system procedures<br>3.4 Configure computer to accept new peripherals<br>3.5 Test hardware peripherals and confirm client satisfaction, paying particular attention to possible effect on other systems and making adjustments as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.1-2.4, 3.1-3.5 | • Interprets textual information from a range of sources to identify and adhere to requirements |
| Writing | 1.2, 1.3, 1.4, 2.1 | • Develops materials and resources using simple vocabulary to convey and record information and inventory, according to client and vendor requirements |
| Oral Communication | 1.2, 1.3, 1.4, 2.1, 3.1, 3.5 | • Participates in verbal exchanges of familiar ideas and information using questioning and active listening to elicit views, opinions and feedback from others |
| Navigate the | 1.1, 1.3, 1.4, 2.1-2.4, | • Understands roles and responsibilities for task and makes basic decisions on work completion parameters |


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| | | |
|---|---|---|
| world of work | 3.2-3.5 | in accordance with organisational requirements, WHS standards and environmental considerations |
| Interact with others | 1.1-1.4, 2.1, 3.1 | • Identifies and takes steps to follow accepted communication practices and protocols |
| Get the work done | 1.1-1.4, 2.1-2.4, 3.1-3.5 | • Plans and implements routine tasks, aiming to achieve them efficiently<br>• Responds to predictable routine problems and implements standard or logical solutions<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS203 Connect hardware peripherals | ICASAS203A Connect hardware peripherals | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS203 Connect hardware peripherals

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- connect several different types of hardware peripherals to the system safely and according to vendor instructions with a minimum of downtime, using known routines and procedures
- locate, interpret and use vendor documentation related to connection and storage of hardware peripherals
- test the operation of newly installed hardware peripherals and confirm client satisfaction
- follow work health and safety policies and procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the commonly used computer operating systems
- identify help desk and maintenance practices
- describe common peripheral devices
- summarise WHS procedures for electrical equipment
- list the system components and describe their interconnectivity
- identify current industry accepted hardware and software products
- describe procedures relevant to maintaining inventory
- list the organisational guidelines and standards that impact on service support including:
  - external suppliers and vendors
  - internal and external communications
  - internet access
  - security of information and data


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- identify common principles for environmentally sustainable business practices.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- sites with a representative range of workstations, hardware peripherals, internet connections and cabling
- software to be installed, interconnected and configured
- hardware and software currently used in industry
- technical documentation, including organisational hardware blueprint and vendor support.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS204 Record client support requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to record, prioritise and escalate client support requests.

It applies to frontline technical support individuals who provide information and communications technology (ICT) client support in a small or large office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Log requests for support | 1.1 Record client support requests and requirements according to organisational standards<br>1.2 Review client support history and details<br>1.3 Check the information and request for accuracy and urgency according to organisational standards |
| 2. Prioritise support requests with appropriate | 2.1 Identify guidelines for prioritising or rating client requests<br>2.2 Prioritise client request based on its criticality or effect on |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| personnel | business |
| 3. Record support request | 3.1 Document support request according to organisational requirements<br>3.2 Refer requests to appropriate person or department for assistance |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1- 1.3, 2.1, 2.2 | • Interprets familiar textual information from a range of sources to identify and review practices and determine that appropriate standards have been maintained |
| Writing | 1.1, 3.1, 3.2 | • Develops materials and resources using simple vocabulary to accurately convey and record client information according to requirements and standards |
| Navigate the world of work | 1.1-1.3, 2.1-2.2, 3.1-3.2 | • Understands roles and responsibilities for task and makes basic decisions on work completion parameters in accordance with organisational standards |
| Interact with others | 3.2 | • Identifies and takes steps to follow accepted communication practices and protocols |
| Get the work done | 1.1-1.3, 2.1-2.2, 3.1-3.2 | • Plans and implements routine tasks, aiming to achieve them efficiently<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness of the outcome<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS204 Record client support requirements | ICASAS204A Record client support requirements | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS204 Record client support requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- log and record calls according to organisational policy and procedures
- prioritise and escalate client support requests according to organisational policy and procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify a range of software and hardware diagnostic tools
- describe organisational procedures for escalating issues
- describe maintenance procedures
- identify business scheduling requirements
- describe current business practices to prepare reports
- identify organisational procedures to rate and prioritise client requests
- identify roles and responsibilities of the information and communications technology (ICT) division.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- sites where logging and client support may be recorded and prioritised
- client support history records


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- organisational policy and procedures related to:
  - critical process
  - escalation procedures
  - logging procedures
  - prioritising client requests.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS205 Maintain ICT system integrity

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to protect and secure stand-alone or networked client server environments.

It applies to technical support individuals who are required to maintain workflow and quality processes in a small or large office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Carry out system backup | 1.1 Create and review organisational backup schedule<br>1.2 Determine storage media and hardware for backups<br>1.3 Ensure backups are carried out according to the schedule<br>1.4 Label and store backups according to organisational standards<br>1.5 Maintain records of backups |
| 2. Restore system backup | 2.1 Determine and test restoration procedures according to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | organisational standards<br>2.2 Restore data under instruction from an appropriate person<br>2.3 Restore data according to organisational standards<br>2.4 Document and report on backup results |
| 3. Maintain virus protection | 3.1 Maintain and update virus protection software according to operating system in use<br>3.2 Carry out virus scanning and report detected viruses to appropriate person<br>3.3 Remove viruses and update scanning software |
| 4. Follow copyright procedures and record software licences where appropriate | 4.1 Identify copyright procedures for licensed software used by the organisation<br>4.2 Maintain records of licence number and location<br>4.3 Monitor operation and use of licensed software where applicable<br>4.4 Check personal computers and networks to ensure software compliance<br>4.5 Report licensing anomalies related to software to an appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1-2.3, 3.1-3.3, 4.1-4.5 | • Interprets familiar textual information from a range of sources to identify and review practices and determine that appropriate standards have been maintained<br>• Researches and interprets information to identify, monitor and evaluate technical information and maintain appropriate standards |
| Writing | 1.4, 1.5, 2.4, 4.2, 4.5 | • Develops materials and resources using simple vocabulary to record information in a sequential manner, adhering to standards for client engagement as well as internal reference |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1-1.5, 2.1-2.4, 3.1-3.3, 4.1-4.5 | • Understands roles and responsibilities for task and makes basic decisions on work completion parameters in accordance with organisational standards |
| Interact with others | 2.2, 4.5 | • Identifies and takes steps to follow accepted communication practices and protocols |
| Get the work done | 1.1-1.5, 2.1-2.4, 3.1-3.3, 4.1-4.5 | • Plans and implements routine tasks, aiming to achieve them efficiently<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness of the outcome<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS205 Maintain ICT system integrity | ICASAS205A Maintain IT system integrity | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS205 Maintain ICT system integrity

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- protect and secure stand-alone or networked client server environments and operating systems according to system maintenance procedures
- complete file backup according to organisational standards
- recover, delete and archive according to backup and recovery procedure
- check computers and networks for compliance with licensing requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify organisational standards regarding:
  - backup and recovery procedures and operations
  - labelling and storage of backups
- describe current industry accepted hardware and software products
- describe current viruses and protection methods
- identify common diagnostic tools
- identify inventory procedures
- identify maintenance procedures
- describe storage and retrieval guidelines
- explain system performance
- identify software copyright and General Public Licence (GPL) or copyright responsibilities.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- sites with a representative range of stand-alone and networked client server environments
- antivirus software
- technical records and documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS206 Detect and protect from spam and destructive software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to reduce the risk of a computer's operation being affected by spam or destructive software.

It applies to technical support individuals who, while working under a level of supervision, have responsibility to exercise the discretion required to protect and secure equipment and software in a small or large office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Detect and remove destructive software | 1.1 Identify common types of destructive software<br>1.2 Select and install virus protection compatible with the operating system in use<br>1.3 Investigate other advanced systems of protection for further options |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Install software updates on a regular basis<br>1.5 Configure software security settings to prevent destructive software from infecting computer<br>1.6 Run or schedule to run virus protection software on a regular basis<br>1.7 Report detected destructive software to appropriate person and remove the destructive software |
| 2. Identify and take action to stop spam | 2.1 Identify common types of spam<br>2.2 Take appropriate action in regard to spam<br>2.3 Configure and use a spam filter<br>2.4 Report spam to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1-2.3 | • Researches and interprets information to identify misleading information and compare technical specifications, and identify solutions to new and emerging issues to maintain system |
| Writing | 1.7, 2.4 | • Uses simple vocabulary to report information in a familiar sequential manner to the appropriate personnel |
| Oral Communication | 1.7 | • Presents factual information in a clear manner, using specific and appropriate language |
| Interact with others | 1.7 | • Identifies and takes steps to follow accepted communication practices and protocols |
| Get the work done | 1.1-1.7, 2.1-2.4 | • Plans and implements routine tasks, aiming to achieve them efficiently<br>• Initiates standard diagnostic procedures when responding to familiar and unfamiliar problems within immediate context, and seeks input from others when problems remain unresolved<br>• Understands the purposes, specific functions and key |


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| | | |
|---|---|---|
| | | features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS206 Detect and protect from spam and destructive software | ICASAS206A Detect and protect from spam and destructive software | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS206 Detect and protect from spam and destructive software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install virus protection software and updates
- schedule virus protection software to run on a regular basis
- remove common destructive software
- identify common spam types and take appropriate action.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe spam and virus intrusions and identify appropriate remedial actions
- identify the types of protective applications used against viruses and spam
- identify the operating systems supported by the organisation
- identify the common components of computer hardware that may be affected by spam.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- sites with a representative range of computer hardware, application software and operating systems
- current antivirus and anti-spam software
- technical records, vendor documentation, enterprise procedures and guidelines.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS207 Protect and secure information assets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure information assets are protected from improper access and appropriate actions are taken to secure assets in the event that they are threatened.

It applies to individuals who, while working under a level of supervision, have responsibility in a frontline technical support capacity to exercise in a small or large office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify assets and threats | 1.1 Identify types of information assets in the organisation<br>1.2 Identify mechanisms by which information assets are accessed, transmitted and stored<br>1.3 Establish nature of threats to information assets and determine effect that loss or damage may have to the organisation |
| 2. Secure assets | 2.1 Identify actions, mechanisms and strategies to protect |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | information assets<br>2.2 Secure assets within scope of authority<br>2.3 Report issues to appropriate person and other issues where they are outside scope of authority |
| 3. Mitigate or prevent damage to assets | 3.1 Identify signs and evidence that information assets are threatened or undergoing loss or damage<br>3.2 Provide first level response to reduce effects, mitigate damage and protect evidence<br>3.3 Report incident, effects and actions to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.2, 2.3, 3.1 | • Researches and interprets text to identify misleading information and compare technical specifications, and identify solutions to new and emerging issues to maintain system |
| Writing | 2.3, 3.3 | • Uses simple vocabulary to report textual information in a sequential manner to the appropriate personnel |
| Oral Communication | 2.3 | • Presents factual information in a clear manner, using specific and appropriate language |
| Navigate the world of work | 1.1-1.3, 2.1-2.3, 3.1-3.3 | • Understands roles and responsibilities for task and makes basic decisions on work completion parameters in accordance with organisational standards |
| Interact with others | 2.2, 2.3 | • Identifies and takes steps to follow accepted communication practices and protocols |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.3 | • Plans and implements routine tasks, aiming to achieve them efficiently<br>• Initiates standard diagnostic procedures when responding to familiar and unfamiliar problems within immediate context, and seeks input from others when problems remain unresolved<br>• Understands the purposes, specific functions and key |


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| | | |
|---|---|---|
| | | features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS207 Protect and secure information assets | ICASAS207A Protect and secure information assets | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS207 Protect and secure information assets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the organisation's information assets and the ways in which these assets are used
- establish potential threats to information assets and analyse the effects these threats would have on the organisation
- implement measures to secure assets, and mitigate or prevent damage, according to organisational requirements
- discuss details of security threats and issues relating to information assets with appropriate persons
- report issues or incidents according to organisational requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify information assets and key sources of information assets
- identify the types of security responses available to secure assets
- identify assets supported by the organisation
- describe general information and communications technology (ICT) hardware and security implications
- identify the organisation’s security procedures.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- a site with computer hardware and office environments representing a range of workplaces
- appropriate software systems
- organisational information assets
- technical records, documentation and enterprise procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS208 Maintain ICT equipment and consumables

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to maintain the operation of basic computer hardware and peripherals, including the replacement of consumables.

It applies to technical support individuals who, while working under a level of supervision, perform mainly routine tasks within an office environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Clean equipment | 1.1 Access and verify cleaning supplies for usability on the selected equipment<br>1.2 Record maintenance actions undertaken according to organisational procedures<br>1.3 Clean equipment according to manufacturer specifications and organisational manuals<br>1.4 Ensure basic work health and safety (WHS) principles and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | guidelines are followed |
| 2. Replace and maintain consumables and supplies | 2.1 Access consumables from storage points and record usage information according to organisational procedures<br>2.2 Replace consumables when needed and log the action undertaken<br>2.3 Dispose of consumables following environmental guidelines<br>2.4 Test equipment to ensure it is in working order at set time periods and according to organisational procedures |
| 3. Maintain equipment | 3.1 Establish which equipment requires maintenance<br>3.2 Maintain equipment according to organisational guidelines and manufacturer specifications<br>3.3 Document maintenance procedures performed according to organisational guidelines<br>3.4 Exercise care to prevent interruption of business activities during maintenance procedures<br>3.5 Store unused equipment devices according to manufacturer specifications and organisational guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.1-2.4, 3.1, 3.2, 3.5 | • Integrates and evaluates a range of textual information to maintain effective methods and appropriate standards |
| Writing | 1.2, 2.1, 2.2, 3.3 | • Uses simple vocabulary to record information in a sequential manner for internal reference |
| Oral Communication | 3.4 | • Uses listening and questioning techniques to clarify schedules while maintaining business standards |
| Numeracy | 2.4, 3.4 | • Recognises and applies familiar measurements relating to time durations |
| Navigate the world of work | 1.1-1.4, 2,1-2.4, 3.1-3.5 | • Understands roles and responsibilities for task and makes basic decisions on work completion parameters |


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| | | |
|---|---|---|
| | | in accordance with organisational procedures, WHS and environmental guidelines |
| Get the work done | 1.1-1.4, 2.1-2.4, 3.1-3.5 | • Plans and implements routine tasks, aiming to achieve them efficiently<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness of the outcome<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS208 Maintain ICT equipment and consumables | ICASAS208A Maintain IT equipment and consumables | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS208 Maintain ICT equipment and consumables

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- clean equipment following manufacturer specifications and work health and safety (WHS) policy and procedures
- replace and dispose of consumables according to regulations and organisational policy
- test and maintain equipment in working order, following WHS procedures
- record activities and actions appropriately.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify current industry accepted hardware and software, and manufacturer maintenance guides
- describe organisational systems related to storage and retrieval of information and equipment
- identify workplace health and safety principles and responsibilities, including ergonomics, work periods and breaks, and conservation techniques
- identify chemical storage, control and disposal procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- a site at which equipment maintenance may be carried out


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- equipment currently used in industry
- relevant equipment documentation that may affect maintenance activities.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS209 Connect and use a home based local wireless network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to install, configure and secure devices to a small home based local network.

It applies to individuals who, while working under a level of supervision, have responsibility in a frontline technical support capacity.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm requirements for home office wireless network | 1.1 Document client requirements and confirm with appropriate person<br>1.2 Identify available documentation and technical support options<br>1.3 Identify the digital devices to be connected to the network and confirm wireless network component requirements<br>1.4 Take action to ensure client support expectations are covered by vendor warranty and support services |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Ensure required work health and safety (WHS) standards are incorporated as part of the installation process |
| 2. Prepare for installation | 2.1 Obtain digital devices and wireless network components<br>2.2 Validate that contents of delivered components and physical contents match the packing list and resolve discrepancies if necessary<br>2.3 Determine internet service provider (ISP) connection properties |
| 3. Install and configure the wireless router and adapters | 3.1 Install the wireless router<br>3.2 Configure the wireless router using the router configuration properties<br>3.3 Install the wireless adapters<br>3.4 Configure the wireless fidelity (Wi-Fi) system |
| 4. Secure the wireless system | 4.1 Set the security components of the system<br>4.2 Test the security components<br>4.3 Review any updated documentation regarding security issues and the components used |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.2, 1.3, 2.1, 3.1-3.4, 4.3 | • Identifies and uses basic knowledge of industry hardware and software appropriate to the environment<br>• Identifies and uses new or upgraded technology skills to enhance learning |
| Reading | 1.2-1.5, 2.1-2.3, 3.1-3.4, 4.1-4.3 | • Interprets a range of texts to evaluate and integrate strategies to maintain effective methods that adhere to client requirements and standards |
| Writing | 1.1 | • Uses simple vocabulary to record information in a sequential manner that adheres to client requirements and for internal reference |
| Oral | 1.1, 1.4 | • Uses listening and questioning techniques to confirm |


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| | | |
|---|---|---|
| Communication | | requirements |
| Navigate the world of work | 1.1-1.5, 2.1-2.3, 3.1-3.4, 4.1-4.3 | • Understands roles and responsibilities for task and makes basic decisions on work completion parameters in accordance with client requirements and WHS standards |
| Interact with others | 1.1, 1.2, 1.4, 2.2 | • Identifies and takes steps to follow accepted communication practices and protocols |
| Get the work done | 1.1-1.5, 2.1-2.3, 3.1-3.4, 4.1-4.3 | • Plans and implements routine tasks aiming to achieve them efficiently<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions and evaluates the effectiveness of the outcome<br>• Understands the purposes, specific functions and key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS209 Connect and use a home based local wireless network | ICASAS209A Connect and use a home based local wireless network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS209 Connect and use a home based local wireless network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine suitable wireless fidelity (Wi-Fi) requirements for small home office style settings
- connect and integrate Wi-Fi components into a small office system safely
- install and configure wireless routers and adapters as part of a Wi-Fi system
- secure components of a Wi-Fi system.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify computer component installation procedures
- describe current industry accepted Wi-Fi network products
- describe Wi-Fi installation requirements
- identify and describe common Wi-Fi systems and Wi-Fi security considerations
- identify internet service provider (ISP) connection protocols
- identify and describe relevant work health and safety (WHS) procedures for electrical equipment
- identify wireless network components.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:


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- the internet to enable configuration procedures
- Wi-Fi equipment currently used in industry
- technical support to support the Wi-Fi installation
- technical documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS301 Run standard diagnostic tests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to troubleshoot problems and conduct diagnostic tests on a range of platforms.

It applies to individuals who, while working under a level of supervision, have responsibility to action tasks in a frontline technical support capacity.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify common symptoms and preventative maintenance techniques | 1.1 Develop a troubleshooting process to help resolve problems<br>1.2 Determine the specific symptoms relevant to different types of hardware, operating system and printer problems<br>1.3 Identify common preventative maintenance techniques to support maintenance strategies |
| 2. Operate system diagnostics | 2.1 Run the system diagnostic program according to specification<br>2.2 Modify the system configuration as indicated by the diagnostic |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | program<br>2.3 Carry out preventative maintenance in line with organisational guidelines |
| 3. Scan system for viruses | 3.1 Scan the system to check and maintain virus protection<br>3.2 Report identified viruses to an appropriate person<br>3.3 Remove virus infections found by the scan using software tools and procedures, or by restoring backups<br>3.4 Document relevant symptom and removal information |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.3, 3.3 | • Interprets textual information to identify issues and solutions to maintain the appropriate standards |
| Writing | 3.2, 3.4 | • Records key information to note output of investigations, and sequences writing to produce cohesive text for reference |
| Oral Communication | 3.2 | • Presents factual information in a clear manner, using specific and appropriate language |
| Interact with others | 3.2 | • Selects and uses appropriate strategies to establish and maintain spoken communication in familiar and some unfamiliar contexts<br>• Derives meaning from a range of oral texts in familiar and some unfamiliar contexts |
| Get the work done | All | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Applies formal problem solving processes when tackling an unfamiliar problem, breaking complex issues into manageable parts and identifying and |


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| | | |
|---|---|---|
| | | evaluating several options for action<br>• Understands key principles and concepts that underpin the design, application and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS301 Run standard diagnostic tests | ICASAS301A Run standard diagnostic tests | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS301 Run standard diagnostic tests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify hardware and operating system problems
- conduct diagnostic tests on a range of platforms according to preventative maintenance and diagnostic policy
- identify the root causes of the problems
- scan systems for computer viruses
- remove viruses using software tools and procedures
- remove viruses by restoring backups.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain, including client organisation structure and business functionality
- identify the current industry accepted hardware and software diagnostic tools, including products that manage:
  - backup procedures
  - configuration procedures
  - hardware maintenance
  - organisational security
- describe common symptoms of problems associated with:
  - desktop applications
  - operating systems
  - laptops


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    - mobile devices
    - printers
    - other common peripherals
- describe a range of preventative tasks relevant to maintaining hardware and software applications
- describe the organisational procedures relevant to diagnostic testing.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment, materials and industry software packages
- security guidelines
- backup procedures
- diagnostic software
- organisational guidelines.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS303 Care for computer hardware

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage the maintenance and location of hardware.

It applies to frontline technical support individuals who work under a level of supervision but have some responsibility to maintain organisational hardware.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish safe work practices | 1.1 Determine, record and apply relevant legal requirements and work health and safety (WHS) standards to the installation and maintenance of computer hardware<br>1.2 Determine, record and apply requirements specified by hardware manufacturers<br>1.3 Determine, record and apply safe work practices, taking into account legal and manufacturer requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Establish location requirements for hardware and peripherals | 2.1 Determine and apply suitable environmental conditions for hardware and peripherals<br>2.2 Determine and apply system protection devices where appropriate<br>2.3 Determine and apply requirements when moving hardware<br>2.4 Determine and apply suitable storage principles for hardware and associated peripherals and media |
| 3. Establish maintenance practices | 3.1 Determine maintenance requirements specified by the equipment manufacturer<br>3.2 Produce maintenance schedules<br>3.3 Perform diagnostic functions, including replacing suspect components with other serviceable components and reloading associated software<br>3.4 Determine whether unserviceable components are replaceable through warranty, replacement or upgrade<br>3.5 Perform diagnostic functions using the operating system and third party diagnostic tools |
| 4. Determine appropriate hardware quality standards | 4.1 Consider and apply business requirements in respect of hardware matters<br>4.2 Determine and apply quality standards to the selection of appropriate hardware and associated peripherals |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.4, 3.1, 3.4, 4.1, 4.2 | • Researches and interprets a range of texts to identify requirements and standards, compare technical specifications, and identify solutions to new and emerging issues to maintain the environment |
| Writing | 1.1-1.3, 3.2 | • Uses simple vocabulary to record key information in a sequential manner to maintain the appropriate standards and for internal reference |


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| | | |
|---|---|---|
| Oral Communication | 3.5 | • Presents factual information in a clear manner, using specific and appropriate language |
| Numeracy | 3.2, 4.1 | • Recognises and applies familiar measurements relating to time durations and uses mathematical calculations to measure and calculate amounts |
| Navigate the world of work | 1.1-1.3, 4.1, 4.2 | • Takes some personal responsibility for adherence to legal and regulatory requirements by establishing safe work practices |
| Get the work done | All | • Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions and evaluates the effectiveness of the outcome<br>• Responds to predictable routine problems and implements standard or logical solutions<br>• Identifies ideas for other applications and considers them in current contexts<br>• Uses digital technology for basic reading, recording and searching information, and communications, following routine procedures and security requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS303 Care for computer hardware | ICASAS303A Care for computer hardware | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS303 Care for computer hardware

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- perform diagnostic functions by replacing components, reloading software and using operating system and other diagnostic tools
- establish location requirements for system hardware and associated peripheral devices
- follow safe work practices
- determine maintenance requirements and establish maintenance schedule
- apply appropriate quality standards to computer hardware and peripherals.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the range of quality levels in current common hardware
- describe the importance of maintenance
- describe workplace health and safety principles specific to working with mains-powered equipment
- identify and describe the potential environmental effects of common types of hardware
- identify common security issues that impact on computer hardware
- identify the software related to hardware operations
- identify common system hardware and associated peripherals functions.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- computer hardware, software and diagnostic tools
- warranty records and reports
- maintenance schedules
- vendor documentation
- safe work practices.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS304 Provide basic system administration

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement components of systems backup, restore, security and licensing in a stand-alone or client server environment.

It applies to individuals who, while working under limited supervision, have responsibility in a frontline technical support capacity to exercise discretion and judgement, using appropriate knowledge to provide assistance.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Record security access | 1.1 Obtain client access requirements and clearance levels according to organisational requirements<br>1.2 Issue computer or network user account and password details to client<br>1.3 Provide security documentation and access to client<br>1.4 Record user account and security access details to maintain |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | system integrity and assist later auditing |
| 2. Record software licences | 2.1 Determine what licensed software is used within the organisation<br>2.2 Maintain records of licence number and location<br>2.3 Check personal computers and network for illegal software<br>2.4 Report illegal software to appropriate person |
| 3. Carry out system backup | 3.1 Create or review organisational backup schedule<br>3.2 Complete file backups according to schedule<br>3.3 Label and store backups according to organisational requirements<br>3.4 Maintain record of backups |
| 4. Restore system backup | 4.1 Determine and test restore procedures according to organisational guidelines<br>4.2 Complete a restore under supervision of an appropriate person<br>4.3 Record completed restore according to organisational guidelines |
| 5. Apply security access controls | 5.1 Document security access as per clearance guidelines set by management<br>5.2 Maintain a security access register in line with organisational guidelines to record which client or groups have access to which resources<br>5.3 Identify the security controls on the file system provided by the operating system<br>5.4 Apply effective access control on files and directories |

# Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 4.1, 5.1, 5.3 | • Interprets and evaluates a range of textual information to maintain effective methods while adhering to appropriate standards |


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| | | |
|---|---|---|
| Writing | 1.2, 1.4, 2.2, 2.4, 3.4, 4.3, 5.1, 5.2 | • Records detailed information incorporating both factual and professional language that adheres to organisational standards |
| Oral Communication | 1.2, 2.4, 4.2 | • Provides information using language appropriate to environment and audience<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.4, 2.2, 3.3, 3.4, 4.1-4.3, 5.1-5.4 | • Extracts and evaluates the mathematical information embedded in a range of tasks and texts to maintain records for internal reference |
| Navigate the world of work | 1.1-1.4, 2.1-2.4 | • Appreciates the implications of legal and regulatory responsibilities related to own work, and is beginning to recognise some general legal principles applicable in relation to security access and software |
| Interact with others | 2.4, 4.2 | • Selects the appropriate form, channel and mode of communication when reporting illegal software use<br>• Contributes to specific activities requiring joint responsibility and accountability when completing a restore under supervision |
| Get the work done | All | • Takes responsibility for planning and organising own work, identifying ways of sequencing and combining elements for greater efficiency, and considering how to link with the work of others<br>• Implements actions as per plan, making slight adjustments if necessary<br>• Selects from a range of pre-determined options in routine situations, identifying and taking some situational factors into account<br>• Monitors and controls access to digitally stored and transmitted information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS304 Provide basic system administration | ICASAS304A Provide basic system administration | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS304 Provide basic system administration

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- perform a systems backup, restore and maintain correct usage according to licensing agreements in a stand-alone or client server environment
- maintain software licence records and check for copyright compliance within the system
- maintain security access records and apply access controls on network resources.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe common backup procedures
- identify and outline operating systems used by the organisation
- describe the organisational security procedures
- identify organisational standards to:
  - carry out backup and restore operations
  - label and store backups
  - record security and software details
- describe the selection, functions and features of appropriate diagnostic tools
- identify software copyright responsibilities
- identify the system's current functionality.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- operating systems
- software licence records
- technical records and documentation
- organisational backup and restore procedures
- organisational security guidelines.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS305 Provide ICT advice to clients

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to provide information and communications technology (ICT) advice and support to clients, including the communication of comprehensive technical information.

It applies to frontline technical support individuals who work under a level of supervision but have responsibility for providing technical support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review client support issues | 1.1 Check for new problems logged by client<br>1.2 Check previous logs for similar problems or requests from client<br>1.3 Investigate and document support issues affecting client<br>1.4 Notify client of the results of investigation and provide advice and support on findings |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Obtain client feedback and make changes |
| 2. Provide advice on software, hardware or network | 2.1 Confirm software, hardware or network requirements with client<br>2.2 Investigate and document a solution<br>2.3 Document additional requirements identified in the investigation and refer them to the client<br>2.4 Obtain approval from client to implement the solution<br>2.5 Investigate and document amount of technical support client may require<br>2.6 Discuss and agree level of technical support identified with client<br>2.7 Arrange time with client when support will take place<br>2.8 Provide technical support as part of group or one-to-one instruction to the client<br>2.9 Provide manuals and help documentation to client |
| 3. Obtain client feedback | 3.1 Create an appropriate evaluation or feedback form or other mechanism to gather feedback about solution and support provided<br>3.2 Provide client with instructions on how to complete form or use other means of providing feedback<br>3.3 Distribute evaluation or feedback to client<br>3.4 Review feedback from client to identify areas for improvement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3 , 1.5, 2.2, 2.5, 3.4 | • Interprets and evaluates information to compare technical specifications, identify areas of improvement and recognise solutions to new and emerging issues |
| Writing | 1.3-1.5, 2.2, 2.3, 2.5, | • Uses written vocabulary, grammatical structures and conventions to accurately convey instructions and |


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| | | |
|---|---|---|
| | 2.9, 3.1-3.4 | record complex information |
| Oral Communication | 1.2, 1.4, 1.5, 2.1, 2.4-2.8 | • Participates in verbal exchange of ideas/solutions using detailed and clear language to contribute information for discussion and confirm client requirements<br>• Varies content, structure, style, tone and vocabulary to suit the needs of audiences |
| Interact with others | 1.4, 1.5, 2.1, 2.3, 2.4, 2.6-2.9, 3.2, 3.3 | • Participates in routine conversations directly relevant to role, responding and contributing in appropriate ways when providing advice to clients and receiving feedback<br>• Shares information and resources, offers assistance voluntarily and provides feedback on others' work when providing client support |
| Get the work done | 1-1-1.3, 1.5, 2.2-2.5, 2.7, 3.1-3.4 | • Plans a range of routine, and some non-routine, tasks, accepting stated goals and aiming to achieve them efficiently when obtaining feedback from client<br>• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Selects from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Applies formal problem solving processes when tackling an unfamiliar problem, breaking complex issues into manageable parts and identifying and evaluating several options for action<br>• Understands key principles and concepts that underpin the design and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS305 Provide ICT advice to clients | ICTSAS305A Provide IT advice to clients | Updated to meet Standards for Training Packages. | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | Minor edit to the competency title. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS305 Provide ICT advice to clients

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- investigate client support requests and provide a documented solution after consultation with client
- convey comprehensive technical information to clients in a clear, concise, jargon-free and coherent manner
- use technical manuals and ‘help’ documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe the available in-house and vendor support
- explain contract and service agreements with vendors
- identify features of different types of hardware supported by the organisation
- identify sources of information relevant to the provision of services and support
- identify operating system:
  - functions and basic features
  - supported by the organisation
- identify and describe security and network guidelines and procedures
- identify the advanced features of software, including the functions and support provided by the organisation.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- peers and supervisors for obtaining information
- relevant information sources
- technical records and documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS306 Maintain equipment and software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to carry out maintenance and fault repair according to organisational procedures, in order to keep equipment and software operating.

It applies to frontline technical support individuals who work under a level of supervision and have some responsibility to maintain computer systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine and undertake required equipment maintenance | 1.1 Examine and review specified equipment and maintenance procedures in order to determine those procedures that can be handled internally<br>1.2 Organise and undertake internal maintenance as specified in the maintenance procedures<br>1.3 Report problems promptly to appropriate person |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Diagnose and repair faults | 2.1 Assess an existing problem situation and identify the main problem area<br>2.2 Test suspected faulty equipment or software for possible failures or performance degradation, using available technology<br>2.3 Analyse the test results<br>2.4 Review historical fault data for information of relevance to existing faults<br>2.5 Develop plans, with prioritised tasks and contingency arrangements for the repair or replacement of faulty equipment or software, with minimum disruption to client<br>2.6 Liaise with appropriate person to obtain approval for the plans<br>2.7 Obtain necessary components and repair equipment or software in a timely, organised manner, following work health and safety (WHS) standards |
| 3. Update documentation and make recommendations for future maintenance | 3.1 Record maintenance and fault data and equipment modifications, according to organisational standards<br>3.2 Identify and report instances where preventative measures are needed<br>3.3 Review and update maintenance and fault data, and report outcomes periodically to appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.3, 2.4, 2.7, 3.2 | • Integrates and evaluates a range of textual information to record and maintain appropriate procedures while adhering to appropriate standards |
| Writing | 1.3, 3.2, 3.3 | • Conveys specific information using clear and precise language and the appropriate format for audience and purpose, and records information for internal reference |
| Oral Communication | 1.3, 2.6, 3.3 | • Articulates clearly using appropriate language and listening and questioning techniques to report data and confirm proposed plans |


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| | | |
|---|---|---|
| Numeracy | 2.5, 2.7 | • Recognises and applies familiar measurements relating to time durations |
| Navigate the world of work | 3.1, 3.2, 3.3 | • Understands how own role meshes with others and contributes to broader work goals when addressing organisational standards and reporting to appropriate persons |
| Interact with others | 1.3, 2.6, 3.3 | • Generally understands what to communicate, with whom and how when reporting problems, gaining approval for plans and reviewing and updating data and reporting outcomes |
| Get the work done | 1.1, 1.2, 2.1-2.7, 3.1-3.3 | • Plans a range of routine and some non-routine maintenance tasks, and repair or replacement of faulty equipment, accepting stated goals and aiming to achieve them efficiently<br>• Selects from a range of predetermined options in routine situations, identifying and taking situational factors into account when determining whether procedures can be handled internally<br>• Selects from a range of predetermined options when diagnosing and repairing faults, identifying and taking situational factors into account<br>• Understands key principles and concepts that underpin the design and operation of digital systems and tools, and applies these when troubleshooting existing technology, repairing faults and making recommendations for future maintenance |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS306 Maintain equipment and software | ICASAS306A Maintain equipment and software | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS306 Maintain equipment and software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- undertake maintenance according to maintenance procedures
- identify and resolve a defined range of equipment and software problems
- maintain accurate records according to organisational guidelines.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe equipment and software maintenance practices
- identify help-desk response level escalation procedures
- describe the operation and purpose of specified equipment
- identify and describe the operation of technical diagnostic tools
- identify quality assurance practices
- identify relevant service level agreements (SLAs) to determine conditions of the SLA cover
- describe client warranty claims, repair or replacement procedures
- identify system's current functionality
- describe organisational work health and safety (WHS) procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:


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- technical environment with a variety of operational equipment
- maintenance procedures, software and tools
- technical manuals
- records and documentation
- organisation health and safety procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS307 Install, configure and secure a small office or home office network

## Modification History

| | |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify available network components relevant to client requirements and to install, configure and secure those components as part of a small office or home office (SOHO) network.

It applies to individuals who work under a level of supervision and have experience with analysis and problem solving when working with technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| **ELEMENT** | **PERFORMANCE CRITERIA** |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm client requirements and identify relevant network equipment | 1.1 Identify and clarify client requirements for the small office home office network<br>1.2 Identify most suitable network design to meet client requirements<br>1.3 Develop and document network design<br>1.4 Identify most suitable network technologies, devices and protocols and network cables and connectors to meet network |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | design<br>1.5 Review available network technologies, devices and protocols and determine the most appropriate to meet client requirements<br>1.6 Source vendors and service suppliers to obtain specifications, availability and cost of identified components<br>1.7 Ensure client sign-off for proposed network design and associated components |
| 2. Install and configure hardware and software | 2.1 Develop installation plans with prioritised tasks and contingency arrangements for installation of components with minimum disruption to client<br>2.2 Liaise with appropriate person to obtain approval for plans, including security clearance and timing<br>2.3 Confirm and review supplier documentation that network cables and connectors have been installed according to industry standards, client requirements and building requirements<br>2.4 Install and configure computer and other hardware according to network design and industry standards, using knowledge of relevant installation and configuration tools<br>2.5 Install and configure network software according to network design and industry standards<br>2.6 Install and configure other software according to network design and industry standards |
| 3. Configure and test network | 3.1 Troubleshoot client-side connectivity using appropriate networking settings to review relevant network tools<br>3.2 Test installed software and hardware, using available networking tools to ensure components function as expected<br>3.3 Test network settings to ensure network is functioning according to specification<br>3.4 Resolve problems identified in testing process |
| 4. Secure network | 4.1 Identify possible security concepts and technologies relevant to securing the network<br>4.2 Apply specific protection using identified security features to protect against possible network attacks<br>4.3 Troubleshoot different types of security intrusion symptoms and issues |
| 5. Document completed work, hand over to client | 5.1 Document final network design and associated hardware, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| and obtain client approval | software and security features<br>5.2 Document installation, boot up and configuration procedures as per client requirements<br>5.3 Complete handover and secure sign-off from client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4-1.6, 2.3-2.6, 3.2, 3.3, 4.1, 4.3 | • Interprets a range of texts to critically evaluate and design the appropriate network, comparing technical specifications and associated costs to install and maintain the network while adhering to requirements and standards |
| Writing | 1.3, 1.7, 2.1, 2.3, 5.1, 5.2, 5.3 | • Records specific information using clear and precise language and appropriate format to develop network plans, instructions, installation and technical specifications while adhering to requirements and standards |
| Oral Communication | 1.1, 2.2, 2.3 | • Participates in a verbal exchange of factual information using listening and questioning techniques to clarify appropriate network installation processes have been maintained and adhere to associated requirements and standards |
| Numeracy | 1.2, 1.4, 1.6, 2.2-2.4 | • Uses a range of mathematical calculations to evaluate and compare numerical information and forecast costs, and applies familiar measurements concerning available or consumed data, time durations and appropriate cable length |
| Navigate the world of work | 1.7, 2.2, 5.3 | • Recognises and follows explicit and implicit protocols and meets expectations associated with own role when obtaining approval and sign-off at relevant stages of job |
| Get the work done | All | • Plans a range of routine and some non-routine tasks, accepting stated goals and aiming to achieve them efficiently, confirming client requirements and identifying relevant equipment<br>• Implements actions as per plan, making slight |


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| | | |
|---|---|---|
| | | adjustments if necessary, and addressing some unexpected issues<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables, consider possible implications of different courses of action and determine the best course of action<br>• Uses systematic, analytical processes in configuration and testing of network, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Applies formal problem solving processes when resolving network problems and troubleshooting symptoms and issues, breaking complex issues into manageable parts and identifying and evaluating several options for action<br>• Understands key principles and concepts that underpin the design and operation of digital systems and tools |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS307 Install, configure and secure a small office home office network | ICASAS307A Install, configure and secure a small office home office network | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS307 Install, configure and secure a small office or home office network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the most suitable network hardware and software equipment to meet client requirements
- install, configure and test the network according to client requirements, and produce appropriate documentation
- identify possible security threats and secure the network.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify current industry accepted hardware and software products, including those used for networks
- identify data and voice transmission technologies and protocols
- identify hardware and software installation procedures
- describe local area network (LAN) capabilities and characteristics, including:
  - network types
  - internet protocol addressing
  - switch and hub operation
- describe network connections, both wired and wireless
- describe networking technologies, including network operating systems and cabling standards
- describe network operating systems and their basic installation procedures for small office applications
- summarise set-up and configuration procedures


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- summarise security implications for a home office network
- describe the methods to secure a home network
- identify small business and home office networking requirements
- identify software packages supported by the organisation
- identify and describe the industry standards applicable to small networks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- current industry standard software, hardware, and networking technologies
- server and workstation hardware and software
- internet connection
- live network
- network components, hardware and software
- networked computers
- vendor hardware and software components
- technical documentation and installation manuals.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS401 Perform unit test for a class

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure that the system is proved adequate, before handover to the client or user, by unit testing functionality and reliability of individual components.

It applies to individuals who use technical and specialised knowledge and apply a systematic approach to and fault finding and problem solving in information and communications technology (ICT) testing environments.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for test | 1.1 Determine test criteria<br>1.2 Prepare test environment<br>1.3 Perform static tests using appropriate test tools to verify correct behaviour of modules<br>1.4 Use a test harness program to exercise module behaviour |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Test objects containing lower level class instances separately<br>1.6 Prepare data to facilitate path testing<br>1.7 Prepare data to facilitate member function testing |
| 2. Conduct test | 2.1 Ensure clean test environment<br>2.2 Initialise test environment<br>2.3 Run test harness and document results in line with test and acceptance processes<br>2.4 Finalise test environment |
| 3. Analyse and classify results | 3.1 Review and classify test results to highlight areas of concern<br>3.2 Compare test results against requirements and design specifications in line with quality benchmarks<br>3.3 Forward test results to appropriate person<br>3.4 Review feedback<br>3.5 Ensure compliance with documentation and reporting standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.6, 1.7, 3.1-3.4 | • Interprets and analyses technical specifications and numerical data from a range of sources to determine requirements and complete necessary actions |
| Writing | 2.3, 3.2, 3.3, 3.5 | • Records and presents specific information logically, using appropriate formats and structures, and revises documents based on feedback and outcomes |
| Oral Communication | 1.1, 3.3 | • Uses active questioning and listening techniques to confirm understanding of testing arrangements and to seek feedback |
| Numeracy | 1.6, 1.7, 2.3, 3.1- 3.5 | • Uses mathematical equations to calculate and compare numerical test data for technical reports and to determine required actions |


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| | | |
|---|---|---|
| Navigate the world of work | 3.4, 3.5 | • Takes personal responsibility for following explicit and implicit policies, procedures and standards |
| Interact with others | 3.3 | • Selects and uses appropriate conventions and protocols when communicating with clients and others in a range of work contexts |
| Get the work done | 1.1-1.7, 2.1-2.4, 3.1-3.3, 3.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Uses the main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS401 Perform unit test for a class | ICASAS401A Perform unit test for a class | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS401 Perform unit test for a class

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare at least TWO test environments
- conduct unit tests, covering:
  - member function test
  - path test
  - static test
- analyse, document and report test results.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain object-oriented programming language
- compare and contrast the key features and processes of automated test tools
- discuss client business domain relating to class to be tested
- outline input and output requirements
- describe organisational requirements relating to class to be tested
- analyse system testing requirements
- analyse underlying test data.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment, materials
- industry software packages
- suitable test plan


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- specific requirements
- design documents used in analysis of the test
- suitable class to test.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS402 Implement configuration management strategies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement administrative and technical procedures throughout the software development and documentation life cycle.

It applies to individuals working in a range of information and communications technology (ICT) development environments who have responsibility to ensure work is completed to quality standards and technical requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify and clarify configuration management requirements | 1.1 Develop and assemble identification standards for the naming and version control of software and documentation, and provide to stakeholders<br>1.2 Identify software configuration tools and procedures for the required level of integration into the programming environment<br>1.3 Identify responsibilities for configuration management within the project and for ongoing support, including approval of changes |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Take action to ensure that stakeholders are aware of their roles<br>1.5 Identify point at which items are subjected to configuration control with stakeholders |
| 2. Employ appropriate control mechanisms | 2.1 Identify and document method for identification and recording of change requests in line with organisational requirements, and ensure this is maintained during development process<br>2.2 Take action to ensure evaluation criteria and process for approval of change requests are employed according to organisational requirements<br>2.3 Take action to ensure other management, security and access control criteria are employed according to organisational requirements<br>2.4 Implement controls to ensure that necessary audit trials and alerts for variations or non-conformance are continuously maintained during development |
| 3. Implement monitoring mechanisms | 3.1 Implement controls to ensure mechanisms to identify software status throughout the software development life cycle are continuously maintained<br>3.2 Document development and maintenance of records and status reports required to show the history of baselines and their links to backups<br>3.3 Take action to ensure level of detail required in status reports, and identification of target audiences, meet the configuration management procedures, International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) and organisational requirements<br>3.4 Integrate configuration management into general project management processes for monitoring and control purposes and document |
| 4. Manage release of product | 4.1 Take action to ensure physical and functional completeness of items for release to all stakeholders<br>4.2 Identify and implement requirements for formal control of software products<br>4.3 Determine and document policies for retention of baseline or master copies, taking into account safety and security, legislative requirements and organisational guidelines |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.3, 4.2 | • Researches and analyses technical textual information and numerical data from a range of sources to determine requirements and complete necessary actions |
| Writing | 1.1, 1.4, 2.1, 3.2, 3.4, 4.3 | • Uses clear and accurate language and documentation formats appropriate to the audience/purpose to convey complex technical information |
| Oral Communication | 1.1, 1.4 | • Uses active questioning and listening techniques to confirm understanding, gain consensus on concepts and liaise with stakeholders |
| Numeracy | 1.1, 2.1, 2.4, 3.2-3.4, 4.3 | • Uses mathematical equations to calculate and compare numerical data for a range of technical and planning reports, and to determine required actions |
| Navigate the world of work | 1.4, 2.1-2.3, 3.3 | • Takes personal responsibility for following explicit and implicit policies and procedures, and ensures that necessary standards and legislative requirements are met |
| Interact with others | 1.1 | • Selects and uses appropriate conventions and protocols when communicating with co-workers and others in a range of work contexts |
| Get the work done | 1.1-1.5, 2.1-2.4, 3.1-3.4, 4.1-4.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision making processes for more complex and non-routine situations<br>• Uses main features and functions of digital tools to complete work tasks |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS402 Implement configuration management strategies | ICASAS402A Implement configuration management strategies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS402 Implement configuration management strategies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and clarify configuration management requirements
- identify and action control mechanisms
- implement administrative and technical procedures
- maintain reliable and valid technical and administrative procedures
- use quality processes, audit trails and version control.

Note: Evidence must be provided for at least TWO situations or organisations.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast project planning methodologies and tools
- explain benchmarking methodologies when implementing monitoring mechanisms
- describe how to formulate software size models and size estimates when employing control mechanisms
- discuss quality assurance and quality processes when implementing monitoring mechanisms
- describe software development methodologies when identifying and clarifying configuration management requirements
- identify and summarise relevant organisational guidelines, legislation and codes of practice.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- configuration tools
- evaluation criteria
- process for approval of change requests
- templates for status reports.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS403 Review site environmental factors prior to ICT system implementation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to review, identify and assess the impact of site environmental factors prior to commencing information and communications technology (ICT) system installation.

It applies to individuals who use specialised knowledge and a systematic approach to assess a physical site to determine its suitability for system installation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan work area | 1.1 Obtain technical and environmental system requirements for equipment to be installed and document site requirements, including work health and safety (WHS) site specific requirements<br>1.2 Consider and take action on requirements associated with equipment against installation requirements<br>1.3 Conduct on-site inspection and audit against site specifications<br>1.4 Formulate preliminary recommendations for site and assess |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | impact on system installation schedule<br>1.5 Prepare preliminary report specifying recommended changes to the site to meet requirements and submit report to appropriate person for approval |
| 2. Evaluate environment | 2.1 Organise appropriate support staff to facilitate successful installation<br>2.2 Install cabling and other environmental equipment to required technical and industry standards<br>2.3 Manage hardware installation to ensure WHS standards for hardware installation are adhered to<br>2.4 Review and test hardware and software to ensure system meets client business requirements and system objectives |
| 3. Document recommendations | 3.1 Prepare final report documenting findings and issues relating to site requirements and preparation<br>3.2 Submit final recommendations to appropriate person for approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3 | • Interprets and analyses complex technical and non-technical information and data from a range of sources to determine requirements and complete necessary actions |
| Writing | 1.1, 1.4, 1.5, 3.1 | • Accurately records a range of technical information and uses clear language and documentation formats to convey findings |
| Oral Communication | 1.5, 2.2, 3.2 | • Uses active questioning and listening techniques to confirm understanding and convey information to team members and clients |
| Numeracy | 1.1, 1.3, 1.4, 3.1 | • Uses mathematical equations to calculate and compare numerical data against technical requirements and to determine required actions |


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| | | |
|---|---|---|
| Navigate the world of work | 1.1, 1.2, 2.3 | • Takes personal responsibility for establishing and complying with legislative requirements |
| Interact with others | 1.5, 2.2, 3.2 | • Selects and uses appropriate conventions and protocols when communicating with co-workers and others in a range of work contexts |
| Get the work done | 1.2-1.4, 2.1-2.4, 3.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required<br>• Uses the main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS403 Review site environmental factors prior to ICT system implementation | ICASAS403A Review site environmental factors prior to IT system implementation | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS403 Review site environmental factors prior to ICT system implementation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify environmental prerequisites prior to commencement of information and communications technology (ICT) system installation
- sequence the preparatory steps
- consider time and budget constraints
- document and submit recommendations.

Note: Evidence must be provided for at least TWO site installation schedules.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss key features of current industry accepted hardware and software products
- analyse current system's functionality
- describe general features and capabilities of network devices
- describe physical prerequisites needed for system installation
- outline possible legislative requirements relating to cabling and building preservation
- identify key features of quality assurance practices
- discuss role of stakeholders and degree of stakeholder involvement
- describe vendor equipment specifications and installation requirements.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:


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- special purpose tools, equipment and material
- industry software packages
- staff resources and technical equipment
- live network
- server and workstation hardware and software
- several different device types to be installed
- a number of scenarios, such as local area networks (LANs) incorporating hubs, routers and peripherals.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS404 Acquire ICT system components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify information and communications technology (ICT) system components and use organisational procedures to purchase identified components.

It applies to individuals who use technical and specialised knowledge and apply a systematic approach to procure system components.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm system components for acquisition | 1.1 Confirm client requirements, including software and operating system requirements<br>1.2 Review technical papers and recommendations that identify required hardware and software components<br>1.3 Review and clearly identify system components<br>1.4 Assess and determine the fit with existing technology by |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | consulting with system developer<br>1.5 Identify and determine the best and current technology fit for each purpose by consulting with system developer<br>1.6 Develop a list of required system components with specifications and possible suppliers |
| 2. Agree on methods of component acquisition | 2.1 Identify and assess the client organisation's preferred acquisition methods and policies<br>2.2 Evaluate acquisition methods and alternatives for required hardware and software components against required service levels, cost constraints, geographic constraints and user preferences<br>2.3 Discuss and agree acquisition method with client<br>2.4 Inform users and other stakeholders of acquisition method |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1 | • Interprets and analyses complex technical information and numerical data from a range of sources to determine client procurement requirements and complete necessary actions |
| Writing | 1.6, 2.3, 2.4 | • Accurately records technical information and uses clear language and documentation formats to convey findings |
| Oral Communication | 1.1, 1.4, 1.5, 2.1-2.4 | • Obtains information by listening and questioning, and participates in verbal exchanges of ideas/solutions using detailed and clear language to contribute information and express requirements |
| Numeracy | 1.1-1.3, 2.1 | • Uses mathematical equations to calculate and compare numerical data against technical requirements and to determine required actions |
| Interact with others | 1.1, 1.4, 1.5, 2.3, 2.4 | • Selects and uses appropriate conventions and protocols when communicating with client and others in a range of work contexts |
| Get the work | 1.3-1.6, 2.1, 2.2 | • Takes responsibility for planning, sequencing and |


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| | | |
|---|---|---|
| done | | prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS404 Acquire ICT system components | ICASAS404A Acquire IT system components | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS404 Acquire ICT system components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and confirm correct system components
- follow procurement procedures to purchase components
- fulfil technical and business requirements
- communicate with client and other stakeholders.

Note: Evidence must be provided for at least TWO systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast the key features of current industry accepted hardware and software products
- compare and contrast financial management options, including leasing arrangement
- identify information gathering techniques
- analyse risk management in relation to information and communications technology (ICT) component use and items procured
- outline quality assurance practices in relation to identifying and acquiring ICT system components
- discuss the client business domain
- research vendor product directions
- describe organisational procurement procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- current system architectures
- current business and ICT strategic plans
- data models
- functional process descriptions
- service levels
- user requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS405 Identify and evaluate ICT industry vendor technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research, evaluate and recommend an industry vendor to supply information and communications technology (ICT) components, and to negotiate with the vendor for supply of identified components. It covers testing and making comparisons and evaluations, including consideration of factors such as after sales service and reliability.

It applies to individuals who use technical and specialised knowledge, and apply a systematic approach to select the most appropriate vendors for the organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Select method to be used for identifying suitable vendor | 1.1 Evaluate organisational purchasing policy as a means of identifying vendors and document outcomes<br>1.2 Consider and undertake other means of identifying suitable vendors and document outcomes |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Recommend preferred method of vendor selection to client<br>1.4 Plan and document selection process |
| 2. Review vendor offerings | 2.1 Notify vendors of organisation's requirements<br>2.2 Undertake evaluation process by comparing offers against organisational requirements<br>2.3 Organise vendor demonstrations and performance benchmark tests<br>2.4 Select vendor based on specific technical criteria, servicing, warranty and after sales service |
| 3. Prepare contracts and delivery requirements | 3.1 Prepare contracts for review by appropriate person<br>3.2 Identify and document delivery arrangements with suppliers<br>3.3 Clarify installation responsibilities with suppliers<br>3.4 Review warranty and support requirements with suppliers and service-level agreement<br>3.5 Confirm details with client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.3 | • Interprets, analyses and reviews complex technical information and numerical/financial data from a range of sources to determine client requirements and complete necessary actions |
| Writing | 1.1-1.4, 2.1, 3.1-3.4 | • Develops material containing specific requirements using clear and technical language, and organises content in a manner that supports the purpose of the document |
| Oral Communication | 1.3, 2.1, 3.1, 3.3, 3.4 | • Obtains information by listening and questioning and participates in verbal exchanges with a range of stakeholders using detailed and clear language to express requirements, gain consensus and convey information |


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| | | |
|---|---|---|
| Numeracy | 1.1, 1.2, 1.4, | • Uses mathematical equations to calculate and compare numerical data against technical and financial requirements and to determine required actions |
| Interact with others | 2.3, 3.1, 3.3, 3.5 | • Selects and uses appropriate conventions and protocols when communicating with client, vendors and others in a range of work contexts |
| Get the work done | 1.1, 1.2, 1.4, 2.1-2.4, 3.1-3.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS405 Identify and evaluate ICT industry vendor technologies | ICASAS405A Identify and evaluate IT industry vendor technologies | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS405 Identify and evaluate ICT industry vendor technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select an appropriate vendor to supply components according to organisational requirements
- communicate with vendors and clients
- evaluate vendors offerings
- prepare contracts and delivery documentation
- demonstrate consistency in the acquisition of technical and business requirements.

Note: Evidence must be provided on at least TWO occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss different benchmarking methodologies
- describe the key features of change management systems
- explain the key features of contracts in relation to supply and support
- compare and contrast the key features of current industry accepted hardware and software products
- compare and contrast the key features of financial management and leasing arrangements
- identify information gathering techniques
- outline quality assurance practices in relation to evaluating and recommending information and communications technology (ICT) vendors
- analyse risk management in relation to evaluating and recommending ICT vendors
- discuss the client business domain
- research vendor product trends.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- current business and ICT strategic plans
- service levels and user requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS406 Implement and hand over system components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure the system is operational prior to hand over for client use, including conducting formal testing and trials to determine whether the system satisfies its acceptance criteria.

It applies to individuals who may work under supervision but have a level of responsibility in ensuring work is planned and completed according to quality and client requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm system integrity | 1.1 Check functioning of the system and its components in both a stand-alone and integrated environment<br>1.2 Specify shortcomings or problems and create an action plan<br>1.3 Review action plan with client<br>1.4 Document system components according to standards and procedures |
| 2. Provide operation and | 2.1 Identify and document operational issues and procedures |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| maintenance guidance | 2.2 Discuss maintenance issues with technical support, and document outcomes<br>2.3 Compare maintenance, operational and warranty considerations with service level agreements (SLAs) and document discrepancies<br>2.4 Clarify outstanding issues with client |
| 3. Hand over system to client | 3.1 Demonstrate installed system to client<br>3.2 Obtain client sign-off to confirm satisfaction and acceptance of the installed system<br>3.3 Discuss and confirm short-term implementation support with client<br>3.4 Discuss and confirm further training needs with client<br>3.5 Document needs and submit to appropriate person for action |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3,1.4, 2.3 | • Interprets and analyses numeric data and textual information containing technical terms and specifications to determine and adhere to requirements |
| Writing | 1.2, 1.4, 2.1-2.4, 3.5 | • Records information using required format, accurate spelling and grammar, and terminology specific to requirements<br>• Develops material containing specific requirements using clear and technical language, and organises content in a manner that supports the purpose of the document |
| Oral Communication | 1.3, 2.2, 2.4, 3.1, 3.2, 3.4 | • Uses clear language to explain technical information and participates effectively in verbal exchanges to clarify requirements in formal and informal situations |
| Navigate the world of work | 1.1, 3.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and standards |
| Interact with | 1.3, 2.2, 2.4, 3.1, | • Selects and uses appropriate conventions and protocols when communicating with client and others in a range |


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| | | |
|---|---|---|
| others | 3.3-3.5 | of work contexts |
| Get the work done | 1.1-1.3, 2.1, 2.3, 3.2-3.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required<br>• Uses the main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS406 Implement and hand over system components | ICASAS406A Implement and hand over system components | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS406 Implement and hand over system components

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- confirm system integrity prior to hand over
- provide operational and maintenance guidance
- hand over system to client.

Note: Evidence must be provided on at least TWO occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss current business practices related to preparing reports, including confirming system integrity and handing over the system
- evaluate current industry accepted hardware and software products to enable candidate to optimise value of a supply contract
- outline key aspects of change management systems
- discuss issues relating to the client-business domain
- describe a range of information gathering techniques
- explain key operational procedures for ICT systems
- analyse key features and processes involved in project planning, including:
  - constraints
  - guidelines
  - deadlines
- outline key features of quality assurance practices
- analyse role of stakeholders in service level agreements (SLA) and discuss degree of stakeholder involvement in determining levels of responsibility in a project
- describe vendor product trend directions.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- customer computer site and system or suitable simulated system and environment
- implementation plan
- people involved in hand over
- project plan
- service level agreements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS407 Conduct pre-installation audit for software installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify and appraise critical pre-existing systems or components prior to the installation of software, including establishing compatibility and interoperability requirements.

It applies to individuals who apply technical and specialised software development knowledge and systematic approaches to determine client/system software requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assess compatibility of existing software | 1.1 Confirm details of software loaded on client system from actual system and from existing system documentation<br>1.2 Identify software prerequisites for new software<br>1.3 Confirm customer requirements with technical specifications<br>1.4 Confirm and assess compatibility issues against installation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | plan and cost constraints<br>1.5 Document recommendations on variances, level and software consistency for consideration by appropriate person |
| 2. Confirm interoperability of software with environment | 2.1 Confirm no conflicts between new software and previously installed software and hardware<br>2.2 Measure degree of interoperability between software<br>2.3 Confirm interoperable functioning of all software involved |
| 3. Assess system capacity to install ordered software | 3.1 Obtain details of current system memory, disk, available disk storage, and other specific hardware requirements from investigation of system and system documentation<br>3.2 Confirm hardware prerequisites for new software are met, implications noted and minimum requirements identified<br>3.3 Confirm and assess capacity issues against installation plan and cost constraints<br>3.4 Document recommendations on variances in capacity for consideration by appropriate person |
| 4. Prepare and distribute audit report | 4.1 Document findings, recommendations and impact on project in a manner appropriate for target audience<br>4.2 Present and distribute the audit analysis report according to organisational standards and procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 3.1 | • Compares and contrasts complex technical information and numerical/financial data from a range of sources to determine client requirements and complete necessary actions |
| Writing | 1.5, 3.2, 4.1, 4.2 | • Develops material containing specific requirements using clear and technical language, and organises content in a manner that supports the purpose of the document |


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| | | |
|---|---|---|
| Oral Communication | 1.3, 1.5, 3.4, 4.2 | • Obtains information by listening and questioning, and participates in verbal exchanges with a range of stakeholders, using detailed and clear language to express requirements and present information |
| Numeracy | 1.4, 2.2, 3.1-3.4, 4.1 | • Uses mathematical equations to calculate and compare numerical data against technical and financial requirements, and to determine required actions |
| Interact with others | 1.3, 1.5, 3.4, 4.2 | • Selects and uses appropriate conventions and protocols when communicating with client and others in a range of work contexts |
| Get the work done | 1.1-1.5, 2.1-2.3, 3.1-3.4, 4.1 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying and documenting issues<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS407 Conduct pre-installation audit for software installation | ICASAS407A Conduct pre-installation audit for software installation | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS407 Conduct pre-installation audit for software installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- assess capability of hardware on which new system is to be installed
- assess capacity of hardware to run the installed system
- confirm new systems will operate cooperatively with existing systems
- prepare an audit report and relevant documentation
- distribute the documentation.

Note: Evidence must be provided for at least TWO installations.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast current industry accepted hardware and software product
- analyse a client business domain and the current information and communications technology (ICT) system functionality
- describe the key features of:
  - quality assurance practices
  - risk management practices
- describe the role of stakeholders and the degree of stakeholder involvement.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment, materials and industry software packages


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- documentation tools
- operational system and system specifications
- technical specifications of software to be installed.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS408 Complete data transition in data migration process

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake manipulation, migration and conversion of data between systems or databases while maintaining data integrity.

It applies to individuals who use technical and specialised knowledge, and apply a systematic approach to perform operations relating to the implementation of new systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Perform data transition | 1.1 Identify and document data that is to be migrated, transferred or archived<br>1.2 Collect required data, target database requirements and implementation details<br>1.3 Clean up data to match new data structures and rules<br>1.4 Write and test conversion programs if required by the implementation plan, or use conversion tools |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Ensure clean data take-on by re-keying or converting according to database requirements and conversion plan<br>1.6 Migrate data to target environment<br>1.7 Archive data according to requirements |
| 2. Check data transition | 2.1 Run reports and other tests on old and new data to verify the quantity and quality of data transition<br>2.2 Run production or specialised programs against data to confirm control totals<br>2.3 Check referential integrity and data constraints and requirements against database requirements and conversion plan<br>2.4 Verify that data transition has been completed according to requirements and plans |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 2.2, 2.3 | • Compares and contrasts complex technical information and numerical data from different sources to determine requirements and complete necessary actions |
| Writing | 1.1, 1.4 | • Develops material using specific and technical language, and organises content in a manner that supports the purpose of the document |
| Numeracy | 2.1, 2.2 | • Uses mathematical equations to calculate quantities and to compare numerical data against technical requirements to determine required actions |
| Get the work done | 1.1-1.7, 2.1-2.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses main features and functions of digital tools to complete work tasks |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS408 Complete data transition in data migration process | ICASAS408A Complete data transition in data migration process | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS408 Complete data transition in data migration process

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify data to be migrated
- transfer data from one system to another
- produce consistency in results
- verify database integrity for transferred data.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe current industry accepted hardware and software products, including their general features and capabilities
- identify and summarise new and existing systems' current functionality
- describe data management systems when performing data transition, including:
  - data integrity
  - database structures
  - quality assurance practices
  - software tools
  - system data requirements
- describe the client business domain relevant to data transition
- outline client's data management and data security policy and procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- conversion program
- data conversion plan
- databases to store data
- implementation plan.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS409 Manage risks involving ICT systems and technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement procedures that identify, analyse, evaluate and monitor risks involving information and communications technology (ICT) systems and technology. This includes the development and management of contingency plans.

It applies to individuals who provide high level technical skills and knowledge, and systematic approaches to manage risk in ICT systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish risk context | 1.1 Review and document organisational and technical environment<br>1.2 Establish and document risk boundaries according to business operating and strategic environment |
| 2. Identify risk factors | 2.1 Develop or acquire a measurement scale for project risk, which |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | includes importance, complexity, time and resources required<br>2.2 Identify project risks based on the measurement scale developed and document according to business requirements<br>2.3 Identify business impact of changes and document according to current and future business directions |
| 3. Implement contingency plans | 3.1 Classify each risk and create contingency plans that address how the risk will be monitored and overcome, if possible<br>3.2 Identify measurable benchmarks to track the treatment of risks to the new system<br>3.3 Identify risk management intervention points according to benchmarked performance tolerances<br>3.4 Demonstrate use of phased implementation and piloting to reduce risk factors |
| 4. Monitor, update and report risk profile | 4.1 Conduct regular risk updates to add new risks and remove old ones<br>4.2 Update contingency plans when appropriate to incorporate new information<br>4.3 Conduct risk reviews at major project milestones and document outcomes<br>4.4 Establish feedback processes to provide warning of potential new risks according to business requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Compares and contrasts complex technical information and numerical data from different sources to determine requirements and complete necessary actions |
| Writing | 1.1, 1.2, 2.1-2.3, 3.1, 4.2, 4.3 | • Develops material using specific and technical language, and organises content in a manner that supports the purpose of the document |
| Oral | 4.1, 4.3, 4.4 | • Obtains information by listening and questioning, and participates in verbal exchanges with stakeholders |


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| | | |
|---|---|---|
| Communication | | using clear and accurate language to express requirements and present information |
| Numeracy | 2.1-2.3, 3.2, 3.3, 4.2 | • Uses mathematical equations to calculate and compare numerical data against benchmarks to determine required actions<br>• Creates or uses measurement scales to rate and prioritise risk |
| Interact with others | 4.1, 4.3, 4.4 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts |
| Get the work done | 1.1, 1.2, 2.1-2.3, 3.1-3.4, 4.1-4.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS409 Manage risks involving ICT systems and technology | ICASAS409A Manage risks involving ICT systems and technology | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS409 Manage risks involving ICT systems and technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and document where risk occurs
- develop and implement measures to mitigate or obviate risk
- set up procedures for regular risk management
- monitor, review and report risk profile

Note: Evidence must be provided for at least TWO information and communications technology (ICT) environments.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse and discuss risk management strategies and issues
- outline key features of regulation, standards and codes of practice relevant to risk management including:
  - ethics
  - copyright and intellectual property
  - privacy legislation
- identify and describe guidelines required for updating technology
- describe the business supply chain for the ICT industry
- summarise user analysis and the client relationship management (CRM) systems
- describe business process design principles in relation to risk management.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- analysis software
- business website
- networks
- requirements documentation
- risk management plan
- site server
- site server software
- software applications
- updated or new technology
- user analysis
- web servers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS410 Identify and resolve client ICT problems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to record and prioritise client support activities, determine the required resources, solve client information and communications technology (ICT) problems or escalate as necessary.

It applies to experienced individuals who apply specialised and technical knowledge and have responsibility for providing support to end users.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine client problems | 1.1 Determine client problem by using questioning or other techniques<br>1.2 Document responses of client for follow-up action<br>1.3 Examine logged requests to determine specific requirements<br>1.4 Take action where required to gain further information<br>1.5 Refer to a database of known problems to identify possible |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | resolution options |
| 2. Prioritise client problems | 2.1 Determine scale of the problem based on information gathered<br>2.2 Establish and record relevant constraints<br>2.3 Undertake an impact analysis of the problem to determine severity and risks<br>2.4 Prioritise problem according to organisation's escalation procedures<br>2.5 Provide advice and support to the client from database of known problems, where appropriate |
| 3. Refer problems where required | 3.1 Investigate and apply appropriate process to follow when referring problems to third parties<br>3.2 Provide third party with client and problem details as required<br>3.3 Document advice and support provided by third party according to organisational guidelines, where appropriate |
| 4. Carry out maintenance | 4.1 Obtain appropriate components for resolution in line with organisational guidelines<br>4.2 Complete maintenance in line with organisational guidelines<br>4.3 Store or dispose of used components following organisational environmental guidelines |
| 5. Prepare maintenance report | 5.1 Prepare a maintenance report, including information about problems and resolution action<br>5.2 Forward maintenance report to client for feedback |
| 6. Confirm problem resolution | 6.1 Obtain feedback from client to ensure requirements have been met<br>6.2 Forward client feedback to appropriate person for sign-off and record in known problems database as appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.3, 1.5, 2.2, 6.1, 6.2 | • Interprets technical specifications and numerical data from a range of documentation and sources to assist in rectifying problems |
| Writing | 1.2, 2.2, 2.5, 3.2, 3.3, 5.1 | • Uses clear language and formats appropriate for the audience to convey explicit technical information, requirements and recommendations |
| Oral Communication | 1.1, 2.5, 3.2, 5.2, 6.1 | • Uses inclusive questioning techniques to obtain information from clients and provides clear and precise advice and information to others |
| Navigate the world of work | 1.4 | • Develops and maintains knowledge relevant to work role |
| Interact with others | 1.1, 2.5, 5.2, 6.1, 6.2 | • Selects and uses appropriate conventions and protocols when communicating with client and others in a range of work contexts |
| Get the work done | 1.1, 1.4, 1.5, 2.1-2.4, 3.1-3.3, 4.1-4.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS410 Identify and resolve client ICT problems | ICASAS410A Identify and resolve client IT problems | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS410 Identify and resolve client ICT problems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- record and prioritise client support activities
- determine required resources
- resolve client problems or escalate according to organisational guidelines or practices
- prepare maintenance report
- seek and record client feedback.

Note: Evidence must be supplied for at least two client support activities.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe hardware and software products:
  - currently in use
  - supported by the organisation
- outline sustainable practices consistent with information and communications technology (ICT) industry
- explain help desk or service desk structure and escalation procedures
- describe key functions and basic features of operating system
- describe organisational structure of workplace
- discuss principles of equal employment opportunity and anti-discrimination relating to client ICT problems
- relating to client ICT problems
- outline workplace security and network guidelines and procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- sites with a representative range of current industry-standard hardware, software and diagnostic tools
- technical records
- organisational guidelines
- vendor documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS411 Assist with policy development for client support procedures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes skills and knowledge required to contribute to the formulation of client support procedures to be included within organisational policy.

It applies to experienced individuals who may work under supervision and have a level of responsibility to ensure work is completed to quality standards and requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine support issues | 1.1 Review current client support procedures followed by the organisation if appropriate<br>1.2 Gather feedback from client detailing positive and negative aspects of their contact with the organisation<br>1.3 Gather feedback from user who executes client support procedures, detailing problems with current methods |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Develop client support procedures | 2.1 Create or update client support procedures using information gathered from client and user<br>2.2 Forward new client support procedures to appropriate person for review |
| 3. Provide recommended changes for client support policy | 3.1 Evaluate feedback on client support policy<br>3.2 Incorporate changes to client support policy<br>3.3 Determine impact the new policy will have on organisational guidelines and client interactions<br>3.4 Prepare report detailing changes in policy and impact on the client and user in a clear and concise manner<br>3.5 Forward report and updated policy to appropriate person for approval |
| 4. Update documented client support policy | 4.1 Amend policies to include new client support procedures<br>4.2 Issue new policies to clients and users in line with organisational guidelines<br>4.3 Maintain policy updates in line with organisational guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1 | • Interprets and analyses technical information and numerical data from different sources to determine requirements and complete necessary actions |
| Writing | 1.2, 1.3, 2.1, 3.2, 3.4, 4.1 | • Develops and presents specific information logically and concisely, using appropriate formats and clear and accurate language<br>• Revises documents based on feedback from others and implements version-control procedures |
| Oral Communication | 1.2, 1.3, 2.2, 3.5, 4.2 | • Effectively uses questioning and active listening techniques, and participates in verbal exchanges to obtain information and gather feedback from a range of stakeholders<br>• Uses detailed and clear language to express |


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| | | |
|---|---|---|
| | | requirements and present information |
| Numeracy | 1.1, 2.1, 3.4, 4.1 | • Interprets, analyses and presents numeric information in documents and reports |
| Navigate the world of work | 4.3 | • Takes personal responsibility for maintaining policies as required by organisational guideline |
| Interact with others | 2.2, 3.5, 4.2 | • Selects and uses appropriate conventions and protocols when communicating with client and others in a range of work contexts |
| Get the work done | 1.1-1.3, 2.1, 2.2, 3.1-3.4, 4.1, 4.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS411 Assist with policy development for client support procedures | ICASAS411A Assist with policy development for client support procedures | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS411 Assist with policy development for client support procedures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate and analyse existing client support policy and procedures
- create or update procedures for current or emerging needs
- elicit feedback and review proposed changes
- make recommendations on new changes
- update and maintain policies.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss current trends and issues in information and communications technology (ICT) relevant to client support
- describe the key features of the organisational guidelines for client maintenance and administration
- explain the key features of organisational policy for access and security
- describe the review process and its key stages.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages


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- sites, peers and supervisors to identify the extent and quality of the contribution required
- information about systems or networks to be supported
- technical manuals, tools and organisational guidelines
- current business requirements and documentation standards.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS412 Action change requests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to receive, review and carry out change requests while using a change management system, according to client requirements.

This unit applies to individuals who may work under supervision and have a level of responsibility to ensure work is completed to quality standards and requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review change requests | 1.1 Receive and document requests for hardware and software changes from client, using a change management system and according to organisational help desk procedures<br>1.2 Gather and organise system data relevant to the change requests, using available diagnostic tools<br>1.3 Review proposed changes against current and future business requirements and examine system data, with work team, to select appropriate changes |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Discuss and clarify the selected changes with client |
| 2. Modify system according to requested changes | 2.1 Develop a plan, with prioritised tasks and contingency arrangements, for modification of the system<br>2.2 Undertake selected system changes according to organisational guidelines and procedures, and according to manufacturer recommendations<br>2.3 Test system changes for performance, and identify problems<br>2.4 Resolve identified problems<br>2.5 Revise relevant client and technical documentation to reflect system changes according to organisational standards<br>2.6 Notify client of status of change and update change management system, as per organisational help desk procedures |
| 3. Prepare and deliver training on use of modified system | 3.1 Prepare training to meet needs of client in using the changed system<br>3.2 Deliver prepared training appropriate to client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2,1.3 | • Interprets and analyses technical textual information and numerical data to determine requirements and complete necessary actions |
| Writing | 1.1, 1.4, 2.1, 2.5, 2.6 | • Uses clear language and formats appropriate to the task to record and update explicit technical information, requirements and recommendations |
| Oral Communication | 1.4, 2.6, 3.2 | • Uses clear and precise language, and interacts effectively with a range of personnel to convey complex technical information, including during training sessions |
| Interact with others | 1.3, 3.2 | • Selects and uses appropriate conventions and protocols when communicating with co-workers and client in a range of work contexts |
| Get the work | 1.1-1.3, 2.1-2.6, 3.1, | • Takes responsibility for planning, sequencing and |


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| | | |
|---|---|---|
| done | 3.2 | prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS412 Action change requests | ICASAS412A Action change requests | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS412 Action change requests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review and assess change requests/requirements
- prioritise tasks
- plan and implement change procedures
- comply with organisational guidelines and client requirements
- prepare and deliver training appropriate to the client.

Note: Evidence must be provided for at least TWO organisations or situations.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse current practices relating to:
  - change management procedures and criteria
  - change-management tools
  - help desk practices
  - quality assurance practices
- describe key features of the client business domain including the role of stakeholders and the degree of stakeholder involvement
- describe the key features and capabilities of current industry-accepted hardware and software products
- analyse current service level agreements (SLAs) within or between organisations
- explain the process for system testing
- outline the system's current functionality.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- change request documentation
- physical system or network
- technical manuals
- appropriate diagnostic tools
- current business requirements
- documentation standards
- Change management system.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS413 Manage resolution of system faults on a live system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage reactive errors and failures on a live system.

It applies to individuals who apply specialised and technical knowledge and a systematic approach to monitor, maintain and troubleshoot maintenance requirements on systems that are currently operating.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine maintenance methodologies and repositories | 1.1 Identify the nature of modification to the system<br>1.2 Confirm existence and currency of repositories<br>1.3 Review repositories for changes and develop new backup procedures<br>1.4 Prepare or check modification request forms and levels of authority for sign-off |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Develop a hierarchy of modifications and the response for each<br>1.6 Determine backup and blackout strategies in place |
| 2. Implement change management system | 2.1 Follow standards and procedures for logging the change request<br>2.2 Document expected impact to user base during implementation<br>2.3 Identify levels of possible failure and related reporting procedures<br>2.4 Document expected outcomes of the modification<br>2.5 Inform user of modification implications<br>2.6 Assign modification to appropriate person for actioning |
| 3. Report review of results | 3.1 Complete aspects of the change system and ensure modification is tested and operational<br>3.2 Prepare report and deliver to appropriate person, indicating the results of modification<br>3.3 Update and amend documentation and repositories |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3 | • Interprets technical and non-technical information and numerical data from a range of documentation and sources to assist with troubleshooting and rectifying problems |
| Writing | 1.3-1.5, 2.2, 2.4, 2.5, 3.2, 3.3 | • Records and reports specific information logically, using appropriate formats and structures, and revises and updates documentation and repositories based on outcomes of action |
| Oral Communication | 2.5, 2.6 | • Uses industry specific vocabulary to explain and present information to a range of personnel |
| Numeracy | 1.2, 1.3, 1.5, 2.1, 3.2, 3.3 | • Uses mathematical equations to calculate and compare numerical data to determine required actions and for preparing technical reports |


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| | | |
|---|---|---|
| Interact with others | 2.5, 2.6, 3.2 | • Selects and uses appropriate conventions and protocols when communicating with co-workers and others in a range of work contexts |
| Get the work done | 1.1-1.6, 2.1-2.3, 2.6, 3.1-3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions, seeking input from others as required<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS413 Manage resolution of system faults on a live system | ICASAS413A Manage resolution of system faults on a live system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS413 Manage resolution of system faults on a live system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the required modifications
- itemise the expected outcomes of the modifications
- implement the modifications
- document and report on the modifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the key features of change control procedures
- describe the key features of the client business domain including the role of stakeholders and the degree of stakeholder involvement
- describe the key features and capabilities of current industry accepted hardware and software products
- analyse the key features of help desk and maintenance practices
- discuss quality assurance practices
- explain the process for system testing
- outline the system's current functionality and describe the features and functions of the system under modification
- identify and summarise industry standards that apply to the information and communications technology (ICT) industry.
-


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, including access to:

- special purpose tools, equipment and materials
- live system
- benchmarking and testing tools.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS414 Evaluate system status

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes skills and knowledge required to evaluate the status of a running system, covering both hardware and software aspects to determine system performance and reliability.

It applies to individuals who apply specialised and technical knowledge and a systematic approach to assessing and evaluating systems prior to problem resolution or upgrades.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine scope and evaluation parameters | 1.1 Determine scope of the system evaluation<br>1.2 Comply with organisational requirements when planning a ‘change of status’ test<br>1.3 Review reason for the evaluation, its objectives, deliverables and key performance indicators, using appropriate capacity tools<br>1.4 Plan and document status evaluation and factor in time, environment, internal and external issues |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Alert affected users if evaluation is likely to impact their operations<br>1.6 Develop a plan for the evaluation and identify resources and methods to be used |
| 2. Carry out evaluation | 2.1 Organise required resources as outlined in the plan, and put in place manual or computerised evaluation methods<br>2.2 Run evaluation process according to agreed scope and evaluation parameters<br>2.3 Record status as per procedural parameters and plan<br>2.4 Observe and document during evaluation the effects of changes to system status that are made, according to effect being evaluated<br>2.5 Observe and record effects not listed and that may require further investigation |
| 3. Report on evaluation | 3.1 Prepare a report to the appropriate person, indicating results of status check in the documentation<br>3.2 Highlight anomalies observed in status check that are outside the expected results<br>3.3 Make recommendations for changes to improve system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 2.4, 2.5 | • Analyses and evaluates technical and non-technical information and numerical data from a range of sources to assist with fault finding and troubleshooting problems |
| Writing | 1.4-1.6, 2.3-2.5, 3.1, 3.2 | • Prepares material using clear and accurate language and numerical data in order to convey explicit information, requirements and recommendations |
| Oral Communication | 1.5 | • Participates in verbal exchanges with a range of stakeholders to obtain information and express requirements |


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| | | |
|---|---|---|
| Numeracy | 1.4, 2.4, 2.5, 3.1, 3.2 | • Uses mathematical equations to calculate and compare numerical data to determine required actions and for preparing technical reports |
| Interact with others | 1.5, 3.1 | • Selects and uses appropriate conventions and protocols when communicating with client and others in a range of work contexts |
| Get the work done | 1.1-1.4, 1.6, 2.1, 2.2, 2.4, 2.5, 3.1-3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Uses formal analytical thinking techniques for identifying issues and generating possible solutions<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS414 Evaluate system status | ICASAS414A Evaluate system status | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS414 Evaluate system status

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine scope of system performance and reliability for hardware and software
- identify comprehensive performance indicators
- evaluate system performance
- document and report on results.

Note: Evidence must be provided for at least TWO systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss capacity planning
- describe the key features of change-control procedures
- describe the key features of client business domain, including the role and level of stakeholder involvement
- compare and contrast the key features and capabilities of current industry accepted hardware and software products
- describe the key features of help desk and maintenance practices
- describe the features of one or more change management tools
- discuss quality assurance practices
- explain the process for system testing
- outline the system's current functionality and describe the features and functions of the system under evaluation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- documentation standards
- backup and recovery policies
- database package with data
- server and networked personal computer.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS415 Optimise ICT system performance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify, improve and monitor information and communications technology (ICT) system performance.

It applies to individuals who are experienced technical support personnel, such as help desk supervisors, ICT support technicians and user support specialists responsible for maintaining computer system performance.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify areas of poor performance | 1.1 Collect system performance data during various usage conditions and times, using available technical tools<br>1.2 Evaluate the collected system performance data related to organisational benchmarks and client feedback to identify areas of poor performance |
| 2. Investigate methods to improve system | 2.1 Identify options to improve performance through discussing the system performance findings with appropriate person and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| performance | accessing technical resources<br>2.2 Create a report for appropriate person, including cost analysis and identified options for alternative courses of action designed to measurably improve performance<br>2.3 Present report to appropriate person for decision as to preferred course of action |
| 3. Develop an implementation plan for system optimisation | 3.1 Develop a plan for implementing the approved optimisation, with prioritised tasks and minimum disruption to clients<br>3.2 Factor project budget and staff availability into the implementation plan<br>3.3 Submit the implementation plan to the appropriate person for approval and revision, if necessary |
| 4. Modify system to optimise performance | 4.1 Install or configure system components according to installation procedures and organisational guidelines, following the implementation plan<br>4.2 Measure and record the change in performance resulting from the system modification to assess that the required level of optimisation has been achieved<br>4.3 Update appropriate documentation according to organisational guidelines to reflect the system optimisation |
| 5. Monitor ongoing system performance | 5.1 Implement and maintain a performance register<br>5.2 Review and assess benchmarks and performance regularly with the work team to enable timely optimisation and updates |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 4.3 | • Analyses and evaluates technical and non-technical information and numerical data from a range of sources to determine benchmarks and performance indicators |
| Writing | 2.2, 2.3, 3.3, 4.2, | • Accurately records information and numerical data, and prepares material using clear and accurate |


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| | | |
|---|---|---|
| | 4.3, 5.1 | language to convey explicit information, requirements and recommendations |
| Oral Communication | 2.1, 5.2 | • Uses active listening and questioning techniques, and participates in verbal exchanges with a range of stakeholders to obtain information and express requirements |
| Numeracy | 1.1, 2.2, 3.2, 4.2 | • Uses mathematical equations to calculate and compare numerical and financial data to determine required actions and for preparing technical reports |
| Navigate the world of work | 4.1 | • Takes personal responsibility for following explicit and implicit policies and procedures |
| Interact with others | 2.1-2.3, 3.3, 5.2 | • Selects and uses appropriate conventions and protocols when communicating with co-workers and others in a range of work contexts<br>• Collaborates with others to achieve shared goals |
| Get the work done | 1.1,1.2, 2.1, 2.2, 3.1, 3.2, 4.1-4.3, 5.1, 5.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS415 Optimise ICT system performance | ICASAS415A Optimise IT system performance | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS415 Optimise ICT system performance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse system performance and document a plan to improve performance
- modify and tune the system to keep the system balanced and performing well.

Note: Evidence must be provided for at least TWO organisations or occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse business scheduling requirements, including the role of stakeholders and the degree of stakeholder involvement
- compare and contrast current industry standard hardware and software monitoring tools, and how to interpret information produced from monitoring
- describe optimum system performance, change-control procedures and theoretical concepts
- analyse one or more change management tools
- discuss quality assurance practices with regard to proposed changes to information and communication technology (ICT) systems
- analyse current system functionality and describe the key features and functions of the system under modification.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to special purpose tools, equipment, materials and industry software packages including:


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- special purpose tools, equipment and materials
- industry software packages, including:
  - system components and software for performance tuning
  - technical manuals and resources
  - fault logs
  - diagnostic tools.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS416 Implement maintenance procedures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to set up maintenance procedures to keep equipment and software operating effectively.

It applies to individuals who use technical and specialised knowledge, and apply a systematic approach to maintaining computer equipment in an organisation.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine best practices for equipment and software maintenance | 1.1 Identify equipment and software that are to be maintained, and implement processes to ensure future acquisitions of equipment and software are identified<br>1.2 Identify vendor documentation, peer organisations or research information detailing best practices in equipment and software maintenance to improve system performance and reliability<br>1.3 Develop recommended maintenance and operations guidelines for equipment and software maintenance based on the above |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | research<br>1.4 Obtain requirements from user in the area of equipment maintenance and reliability<br>1.5 Document procedures for maintenance based on best practices |
| 2. Identify resources to provide equipment and software maintenance | 2.1 Identify and record the level of support that can be provided by in-house resources<br>2.2 Identify and record the support to be supplied by external or third-party organisations<br>2.3 Develop or update service level agreement (SLA) with internal user and third-party suppliers |
| 3. Revise practices, where appropriate | 3.1 Monitor and review maintenance operation<br>3.2 Identify problem areas, including failures to meet SLAs, and consider changes to maintenance procedures<br>3.3 Assess changes in consultation with user, support staff and third-party suppliers<br>3.4 Design and implement improvements to maintenance procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 3.2 | • Researches and analyses technical and non-technical information and numerical data from a range of sources to determine benchmarks and performance indicators |
| Writing | 1.3, 1.4, 1.5, 2.1-2.3, 3.3, 3.4 | • Accurately records information and numerical data, and prepares material using clear and accurate language in order to convey explicit information, requirements and recommendations |
| Oral Communication | 1.4, 2.3, 3.3 | • Uses active listening and questioning techniques, and participates in verbal exchanges with a range of stakeholders in formal and informal situations to obtain information and express requirements |


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| | | |
|---|---|---|
| Numeracy | 1.1, 1.2, 2.1,2.2, 3.2 | • Uses mathematical equations to calculate and compare numerical data to determine required actions and for preparing documentation |
| Interact with others | 1.4, 2.3, 3.3 | • Selects and uses appropriate conventions and protocols when communicating with users and others in a range of work contexts |
| Get the work done | 1.1-1.4, 2.3, 3.1-3.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS416 Implement maintenance procedures | ICASAS416A Implement maintenance procedures | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS416 Implement maintenance procedures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- set up and document the maintenance procedures to keep equipment and software operating
- identify resource requirements
- document or update service level agreements (SLAs)
- revise maintenance procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse client business domain including:
  - the role of stakeholders and the degree of stakeholder involvement
  - business scheduling requirements
- compare and contrast the key features and capabilities of current industry standard hardware and software products
- describe the key features and purpose of diagnostic tools and one or more change management tools
- describe the key features of help desk and maintenance practices and procedures
- discuss quality assurance practices
- analyse the system's current functionality and performance level.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- industry software packages
- technical environment with a variety of operational equipment
- technical manuals and tools.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS417 Undertake ICT system capacity planning

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to monitor and assess the current and future capacity requirements of an information and communications technology (ICT) system, plan future enhancements and install the identified enhancements.

It applies to experienced individuals who work under limited supervision and use technical and specialised knowledge to undertake strategic planning and forecasting initiatives.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse existing system capacity | 1.1 Review existing system configuration information, both hardware and software, to determine capacity issues<br>1.2 Investigate the current system workload and analyse its effect on the capacity to perform<br>1.3 Examine the current service level agreement (SLA) to determine agreed-upon capacity standards<br>1.4 Examine and analyse the fault logs for those caused by |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | capacity problems<br>1.5 Discuss and review capacity issues with users<br>1.6 Document information gathered about the existing system workload and capacity according to organisational guidelines |
| 2. Determine future capacity requirements | 2.1 Interview the user to gather data about future system capacity requirements<br>2.2 Organise, analyse and evaluate future requirements data to obtain a forecast workload for the system<br>2.3 Using data and information gathered, compare existing workload with the forecast workload and evaluate to determine capacity problem areas<br>2.4 Estimate resources and equipment required to resolve predicted capacity problems<br>2.5 Undertake a financial analysis of the estimated capacity requirements<br>2.6 Organise and document information according to organisational guidelines<br>2.7 Prepare and present a report to appropriate person, detailing recommendations for capacity enhancements based on an analysis of documentation |
| 3. Develop plan for capacity enhancements | 3.1 Develop a plan for implementing recommended enhancements, with prioritised tasks and minimum disruption to users<br>3.2 Factor into the implementation plan the availability of finances, staff and other requirements<br>3.3 Submit the implementation plan to appropriate person for approval and revision |
| 4. Install capacity enhancements | 4.1 Install capacity enhancements according to installation procedures, organisational guidelines and implementation plan<br>4.2 Measure the increase in capacity and performance resulting from installed equipment to assess whether capacity requirements have been met<br>4.3 Update documentation according to organisational guidelines to reflect the capacity enhancements |
| 5. Monitor ongoing capacity requirements | 5.1 Monitor and assess the impact of new technology and application development on capacity and performance<br>5.2 Implement and maintain a performance database |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.3 Review and assess benchmarks and performance regularly with work team to enable timely capacity enhancements and updates of benchmarks |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.3, 2.7, 5.3 | • Researches and evaluates technical and non-technical information and numerical and financial data from a range of sources to determine benchmarks and performance indicators |
| Writing | 1.5, 1.6, 2.1, 2.6, 2.7, 3.1-3.3, 5.2 | • Accurately records information and numerical data, and prepares documentation using clear and accurate language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.5, 2.1, 3.3, 5.3 | • Uses listening and questioning techniques to obtain and convey information |
| Numeracy | 2.3- 2.5, 3.1, 3.2, 4.2, 5.1-5.3 | • Uses mathematical equations to calculate, compare and estimate numerical and financial data required for forecasting and planning activities |
| Interact with others | 1.5, 2.1, 2.7, 3.3, 5.3 | • Selects and uses appropriate conventions and protocols when communicating with users, co-workers and others in a range of work contexts<br>• Collaborates with others to achieve shared goals |
| Get the work done | 1.1-1.6, 2.2-2.7, 3.1-3.3, 4.1, 5.1-5.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses main features and functions of digital tools to complete work tasks |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS417 Undertake ICT system capacity planning | ICASAS417A Undertake IT system capacity planning | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS417 Undertake ICT system capacity planning

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- monitor and accurately assess current and future capacity requirements of a system and document outcomes
- predict and document capacity requirements, with forecasts being realistic and achievable
- plan and install capacity enhancements
- create and maintain required documentation.

Note: Evidence must be provided for at least TWO organisations or occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse and describe the system's current functionality
- outline the key features of:
  - component performance management
  - current industry accepted hardware and software products
  - financial analysis
  - client business domain
  - performance monitoring tools
  - quality assurance practices with regard to proposed Information and Communications Technology (ICT) capability enhancements
  - service level agreements relating to proposed ICT capability
  - enhancements
  - role of stakeholders and the degree of stakeholder involvement.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment, materials and
- industry software packages
- live system
- service level agreements
- fault logs
- users
- hardware components for installation.

Assessor must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS418 Monitor and administer security of an ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to monitor and administer security functions of an information and communications technology (ICT) system.

It applies to experienced individuals who, while working under a level of supervision, have responsibility in a frontline technical support capacity to ensure organisational standards are met, and apply technical and specialised knowledge to maintain the security of a system.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Ensure user accounts are controlled | 1.1 Modify default user settings to ensure they conform to security policy<br>1.2 Modify previously created user settings to ensure they conform to updated security policy<br>1.3 Ensure legal notices displayed at logon are appropriate<br>1.4 Check strength of passwords using the appropriate utilities and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | consider tightening rules for password complexity<br>1.5 Take action to ensure password procedures are reviewed with appropriate other internal departments<br>1.6 Monitor email to uncover breaches in compliance with legislation<br>1.7 Access information services to identify security gaps and take appropriate action using hardware and software or patches |
| 2. Secure file and resource access | 2.1 Review inbuilt security and access features of the operating system and consider need for further action<br>2.2 Develop or review the file security categorisation scheme, and develop an understanding of the role of users in setting security<br>2.3 Monitor and record security threats to the system<br>2.4 Implement a virus checking process and schedule for the server, computer and other system components<br>2.5 Investigate and implement inbuilt or additional encryption facilities |
| 3. Monitor threats to the network | 3.1 Use third-party software or utilities to evaluate and report on system security<br>3.2 Review logs and audit reports to identify security threats<br>3.3 Carry out spot checks and other security strategies to ensure that procedures are being followed<br>3.4 Prepare and present an audit report and recommendations to appropriate person<br>3.5 Obtain approval for recommended changes to be made |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.6, 1.7, 2.1, 2.2, 2.5, 3.1, 3.5 | • Researches and analyses technical and non-technical information and system data from a range of sources to determine requirements and complete necessary actions |


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| | | |
|---|---|---|
| Writing | 1.5, 2.2, 2.3, 3.1, 3.4 | • Accurately records information and system data using required format, terminology and conventions specific to requirements<br>• Prepares reports using concise language and correct spelling and grammar to convey explicit information, requirements and recommendations |
| Oral Communication | 1.5, 3.1, 3.5 | • Obtains information by listening and questioning, and participates in verbal exchanges with a range of personnel using detailed and clear language to contribute information and express requirements and recommendations |
| Numeracy | 1.1, 1.2, 2.3-2.5, 3.1, 3.2 | • Uses mathematical equations to calculate and compare system and numerical data to determine required actions and prepare reports and schedules |
| Interact with others | 1.5, 3.4, 3.5 | • Selects and uses appropriate conventions and protocols when communicating with others in a range of work contexts |
| Get the work done | 1.1-1.7, 2.1-2.5, 3.1-3.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS418 Monitor and administer security of an ICT system | ICASAS418A Monitor and administer security of an IT system | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS418 Monitor and administer security of an ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review user accounts for their security control
- identify security features available in the operating environment
- monitor, document and administer security functions on the system
- monitor threats to the network using:
  - third-party diagnostic tools
  - implementation of virus checking process and schedule
  - preparation of an audit report and recommendations.

Note: Evidence must be provided for at least TWO systems or occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the key features of current industry accepted hardware and software products related to IT security
- discuss privacy issues and legislation with regard to IT security
- explain the key components of risk analysis process for system security
- describe the key features of specific security technology and systems technologies
- analyse the client business domain, including client organisation structure and business functionality.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:


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- special purpose tools, equipment and materials
- industry software packages
- the security policy
- industry and organisational standards
- a live system.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS419 Support system software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to operate and support system software.

It applies to individuals who provide assistance and use technical and specialised knowledge and a systematic approach to tasks to ensure organisational standards are met in maintaining the operating system.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Maintain system software | 1.1 Evaluate system effectiveness against organisational requirements and benchmarks to determine if maintenance activities should be commenced<br>1.2 Use system utilisation, file and disk structure, performance reports and files to identify peak periods and possible performance problems<br>1.3 Monitor system data levels to determine whether system performance is consistent with predetermined standards |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Troubleshoot the system, if required, with appropriate system tools<br>1.5 Monitor and retune the system to improve performance |
| 2. Set up and manage system files | 2.1 Evaluate system requirements and monitor the appropriateness of file and folder structures<br>2.2 Use appropriate administration and tools to create file and folder structures<br>2.3 Set security, access and sharing of file system to meet requirements<br>2.4 Identify virus protection requirements of the network in line with policies and organisational requirements<br>2.5 Scan system for viruses and remove detected viruses<br>2.6 Test file system to ensure appropriate access is available to user groups<br>2.7 Ensure logon scripts and custom written utilities and programs conform to organisational guidelines for simple programming constructs<br>2.8 Document the file system created according to organisational guidelines |
| 3. Monitor and manage system usage and security | 3.1 Monitor user access against user access levels<br>3.2 Review security requirements for user and data to be stored on network<br>3.3 Determine risks that data is exposed to, and formulate appropriate prevention and recovery processes<br>3.4 Implement a system to provide backup and to restore services in the event of a disaster<br>3.5 Document disaster recovery procedures |
| 4. Carry out system backup | 4.1 Confirm backup schedule meets organisational requirements<br>4.2 Ensure system backups are completed according to organisational, scheduling and system requirements<br>4.3 Ensure that a secure off-site location for the storage of backup media is provided and used<br>4.4 Ensure system backups are recorded according to organisational requirements |
| 5. Restore system backup | 5.1 Ensure system restores are completed when required for system recovery or testing according to organisational guidelines |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.2 Optimise the restored system according to organisational requirements<br>5.3 Ensure system restores are documented according to organisational requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.4, 2.5, 2.7, 3.1-3.3 | Interprets and analyses technical and non-technical information and system data from a range of sources to determine requirements and complete necessary actions |
| Writing | 2.8, 3.3, 3.5, 4.4, 5.3 | Accurately records information and system data using required format, terminology and conventions specific to requirements<br>Prepares reports using concise language and correct spelling and grammar to convey explicit information and requirements |
| Numeracy | 1.2, 2.7, 2.8, 3.2, 5.3 | Uses mathematical equations to calculate and compare system and numerical data to determine required actions and to prepare reports |
| Get the work done | 1.1-1.5, 2.1-2.3, 2.5, 2.6, 2.8, 3.1, 3.3-3.5, 4.1, 4.2, 4.4, 5.1, 5.2 | Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>Applies analytical processes to resolve technical or conceptual problems<br>Uses main features and functions of digital tools to complete work tasks |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS419 Support system software | ICASAS419A Support system software | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS419 Support system software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- monitor and document system software performance according to vendor and organisational benchmarks
- maintain system performance to these benchmarks
- use a wide range of features and system tools.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse and describe system software and system tools
- outline the key features of change management systems
- describe the client business domain
- describe the quality assurance practices with regard to supporting system software
- identify and describe vendor products and trends in product development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:

- special purpose tools, equipment and materials
- industry software packages
- organisational performance benchmarks
- live system


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- client user requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS420 Provide first-level remote help desk support

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to resolve first-level user support difficulties or change requests remotely.

It applies to experienced individuals who, while working under a level of supervision, have responsibility in a frontline technical support capacity to exercise discretion and judgement using appropriate knowledge to provide assistance and remote help desk support to clients.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the user support issue | 1.1 Determine the eligibility status of the individual experiencing the user support difficulty against organisational guidelines for user support services<br>1.2 Clarify the user support difficulty or change request with client, using active listening and questioning techniques where possible<br>1.3 Confirm the nature of the user support difficulty or change |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | request with client, using technical language that is understandable by the client |
| 2. Identify the hardware or software being used by the customer or client | 2.1 Identify the software, hardware, network connection or application being used by the client<br>2.2 Identify the outcome the client is trying to achieve and the stage of the process they have reached, using active listening and questioning techniques<br>2.3 Step the client back to the beginning of the process using plain English<br>2.4 Walk the client through the process in a clear and logical manner |
| 3. Confirm resolution of user support issue | 3.1 Determine, describe and eliminate factors that may have created the user support issue or permit it to recur<br>3.2 Explain and guide the client through a complete recovery and resolution process for the issue or change request<br>3.3 Provide sufficient instruction to the client to enable effective handling and resolution of the issue, if it recurs<br>3.4 Offer next level escalation or lodgement of change request, explaining cost involved, if user request is not possible to resolve under current circumstances<br>3.5 Document changes where appropriate |
| 4. Maintain communication link | 4.1 Confirm resolution of difficulty with client according to client service policy<br>4.2 Confirm client satisfaction with the current service according to client service policy<br>4.3 Inform client of additional support or services available, according to the organisation's client service policy<br>4.4 Provide the client with additional information related to products and services offered by the organisation, as required by the organisation's sales promotion requirements<br>4.5 Complete the client contact records according to the client service requirements |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1 | • Interprets and analyses technical and non-technical information from a range of sources to determine requirements and complete necessary actions |
| Writing | 3.5, 4.5 | • Accurately records client information using required format, terminology and conventions<br>• Uses concise language and correct spelling and grammar to clearly convey explicit information and actions taken |
| Oral Communication | 1.1-1.3, 2.1-2.4, 3.1-3.4, 4.1-4.4 | • Uses active questioning and listening techniques to convey and clarify information and confirm understanding<br>• Conveys complex technical information using clear and concise language pitched to a level that the client understands |
| Numeracy | 3.4, 3.5, 4.4 | • Uses mathematical equations to calculate costs and estimate time in providing client services and in determining required actions |
| Interact with others | 1.2, 1.3, 2.2-2.4, 3.2-3.4, 4.1-4.4 | • Selects and uses appropriate conventions and protocols when communicating with clients in a range of work contexts |
| Get the work done | 1.1-1.3, 2.1, 2.3, 2.4, 3.1-3.4, 4.1-4.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS420 | ICASAS420A | Updated to | Equivalent |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| Provide first-level remote help desk support | Provide first-level remote help desk support | meet Standards for Training Packages | unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS420 Provide first-level remote help desk support

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the user difficulty and support required
- resolve first-level user support difficulties remotely
- demonstrate customer service skills
- obtain client feedback and document problem resolution.

Note: Evidence must be provided for at least TWO organisations/clients.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the key features of customer service policies and procedures
- identify and discuss the range of contexts where escalation procedures are required
- identify the work health and safety (WHS) procedures related to the work environment and organisational requirements
- describe user support policies of limited complexity related to known or commonly used options.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the system administration and support field of work and include access to special purpose tools, equipment, materials and industry software packages including:

- customer service policies
- user support policies
- escalation procedures


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- communications hardware.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS421 Support users and troubleshoot desktop applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to sustain users who run operating systems (OS) in a corporate or home environment.

It applies to individuals who provide frontline support to users and apply technical and specialised knowledge to fault finding and problem solving.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Install, configure and troubleshoot applications | 1.1 Install application for client<br>1.2 Configure and customise application within user environment<br>1.3 Resolve application problems |
| 2. Resolve issues related to usability, customisation and connectivity | 2.1 Determine issues and problems experienced by the client<br>2.2 Research solutions to issues and problems<br>2.3 Recommend solutions to client |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.4 Resolve issues and problems |
| 3. Configure application security | 3.1 Identify and troubleshoot problems related to security permissions<br>3.2 Identify and respond to security incidents<br>3.3 Manage application security settings |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2, 3.1 | • Researches and analyses complex technical and non-technical information from a range of sources to determine requirements and complete necessary actions |
| Writing | 2.3 | • Uses clear language and appropriate formats to convey and present explicit information |
| Oral Communication | 2.3 | • Participates in verbal exchanges using clear and concise language to convey and clarify complex technical information |
| Numeracy | 1.2, 2.1, 3.3 | • Uses mathematical equations to calculate and compare numerical data to solve problems and determine required actions |
| Interact with others | 2.3 | • Selects and uses appropriate conventions and protocols when communicating with clients in a range of work contexts |
| Get the work done | 1.1-1.3, 2.1, 2.2, 2.4, 3.1-3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses main features and functions of digital tools to complete work tasks |


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# Unit Mapping Information

| Code and title<br>current version | Code and title<br>previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS421 Support users and troubleshoot desktop applications | ICASAS421A Support users and troubleshoot desktop applications | Updated to meet Standards for Training Packages.<br><br>Minor changes to performance criteria for clarity. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS421 Support users and troubleshoot desktop applications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- install, configure and troubleshoot computer applications
- customise computer applications
- anticipate and respond to a range of security incidents.

Note: Evidence must be provided for at least TWO users/situations.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the key features of operating systems (OS) and office applications including an analysis of the current system
- identify sources of OS patches
- discuss specific features of security incidents
- describe the key features of typical systems and procedures of user support.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to special purpose tools, equipment, materials and industry software packages, including:

- appropriate OS installation compact disk or recovery boot disks
- computers with application errors
- samples of operating system patches
- stand-alone or networked personal computer.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS422 Scope implementation requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to define boundaries and deliverables of a system installation project, in one location, in the context of an overall implementation plan.

It applies to individuals who apply specialised and technical knowledge to strategic initiatives and project planning.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine scope | 1.1 Review project plan and other documentation<br>1.2 Determine installation requirements<br>1.3 Identify other implementation issues |
| 2. Confirm scope with parties | 2.1 Develop and document preliminary project scope and submit to appropriate person<br>2.2 Review requests for revision to scope |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Identify areas for further development<br>2.4 Prepare implementation plan and forward to appropriate person |
| 3. Update plans to account for scope | 3.1 Review implementation plan, taking into account scope of system<br>3.2 Review key dates and events to determine if conflicts exist<br>3.3 Confirm revised plans and documents with appropriate person for final approval and sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.2, 2.3, 3.1, 3.2 | • Researches and analyses complex technical and non-technical information from a range of sources to determine requirements and complete necessary actions |
| Writing | 2.1, 2.4, 3.3 | • Develops material for a specific audience using clear and detailed language and appropriate formats to convey explicit information, requirements and recommendations<br>• Reviews and updates documentation based on feedback received |
| Oral Communication | 3.3 | • Participates in verbal exchanges using clear and concise language to convey and clarify complex technical information |
| Numeracy | 1.1, 1.2, 2.1, 3.1, 3.2 | • Uses mathematical equations to calculate, compare and estimate numerical and financial data required for planning and scheduling |
| Interact with others | 2.1, 2.4, 3.3 | • Selects and uses appropriate conventions and protocols when communicating with others in a range of work contexts |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1-3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems |


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| | | |
|---|---|---|
| | | • Uses main features and functions of digital tools to complete work tasks |

## Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS422 Scope implementation requirements | ICASAS422A Scope implementation requirements | Updated to meet Standards for Training Packages | Equivalent unit |

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS422 Scope implementation requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare a project plan and implement an approach that addresses:
  - drivers
  - measures of success
  - implementation by functional area
  - coordination.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe project planning, including the scope and roles of individuals
- outline the key features of:
  - client business domain
  - information and communications technology (ICT) related services and issues
- identify and describe possible legislative requirements relating to cabling and building preservation
- describe the role of stakeholders and degree of stakeholder involvement
- summarise current trends in vendor products
- analyse and describe:
  - current industry accepted hardware and software products
  - prerequisites needed for system installation
  - vendor specifications and requirements for installation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to special purpose tools, equipment, materials and industry software packages, including:

- project documentation
- staff
- resources
- technical equipment.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS424 Support different operating systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to repair boot up procedures in a variety of operating systems (OS).

It applies to individuals who use technical and specialised knowledge and a systematic approach to troubleshooting and fault finding.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine organisation's help desk procedures | 1.1 Review organisation's technical support procedures<br>1.2 Interrogate help desk system<br>1.3 Liaise with client |
| 2. Identify OS | 2.1 Examine operating system file and root structure<br>2.2 Identify profile information<br>2.3 Explore the help structure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.4 Observe boot process |
| 3. Differentiate OS | 3.1 Compare and contrast features of OS<br>3.2 Examine kernel file structures<br>3.3 Determine currency of operating system |
| 4. Analyse OS boot processes | 4.1 Analyse boot procedures<br>4.2 Evaluate associated boot files<br>4.3 Itemise boot procedures for different operating procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 3.2 | • Interprets and analyses complex technical information from a range of sources to determine requirements and complete necessary actions |
| Writing | 1.3, 4.3 | • Records information in the correct format, using accurate spelling and grammar, and terminology and conventions specific to requirements |
| Oral Communication | 1.3 | • Participates in verbal exchanges using clear and concise language to convey and clarify complex technical information |
| Numeracy | 1.2, 3.3, 4.3 | • Uses mathematical equations to calculate and compare numerical data required for troubleshooting and problem solving |
| Interact with others | 1.3 | • Selects and uses appropriate conventions and protocols when communicating with clients in a range of work contexts |
| Get the work done | 1.1,1.2, 2.1-2.4, 3.1-3.3, 4.1-4.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses main features and functions of digital tools to complete work tasks |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS424 Support different operating systems | ICASAS424A Support different operating systems | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS424 Support different operating systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review technical support procedures with client
- evaluate the functionality of the operating system (OS)
- differentiate the OS features, structure and currency
- analyse the OS boot processes and procedures.

Note: Evidence must be provided on at least TWO operating systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse boot processes in use
- identify and analyse files required for operation
- compare and contrast the key features of a range of OS.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to special purpose tools, equipment, materials and industry software packages, including:

- stand-alone or networked personal computer
- appropriate OS installation compact disk or recovery boot disks
- drivers for connected devices
- help-desk system.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS425 Configure and troubleshoot operating system software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to configure, maintain and troubleshoot operating system (OS) software to ensure organisational requirements and client needs are met.

It applies to individuals who are required to install, configure, optimise and troubleshoot OS software to meet organisational requirements.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify available operating systems | 1.1 Compare and contrast different OS<br>1.2 Identify and demonstrate knowledge of basic OS features<br>1.3 Research OS vendor sites to obtain technical specifications and system requirements<br>1.4 Install and configure the OS using features such as Internet |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | Information Services (IIS)<br>1.5 Determine licensing, hardware and security requirements and provide recommendations to appropriate person |
| 2. Install, configure and optimise operating systems | 2.1 Install, configure and test the OS using the installation components and boot utility options<br>2.2 Use the OS user interface to correctly configure the installation<br>2.3 Identify different directory structures and demonstrate management of virtual memory<br>2.4 Optimise system to meet organisational requirements<br>2.5 Document system according to organisational requirements |
| 3. Resolve problems using tools | 3.1 Identify command line options and system tools available to troubleshoot problems<br>3.2 Identify specific problems and implement strategies for resolution<br>3.3 Use options and tools to resolve common operating system issues |
| 4. Provide instruction for new operating system implementation | 4.1 Provide one-to-one instruction about changes to the client or users as required<br>4.2 Obtain client evaluation about new system to ensure requirements are met, using appropriate feedback mechanism |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 1.5, 2.3, 3.1, 4.2 | • Researches and analyses technical textual information and numeric data to source solutions and determine necessary actions |
| Writing | 1.5, 2.5, 4.2 | • Uses clear and technical language and formats appropriate to the task to record and convey information, requirements and recommendations |
| Oral Communication | 1.5, 4.1, 4.2 | • Uses clear and precise language to convey complex technical information and listening and questioning |


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| | | |
|---|---|---|
| | | skills to obtain feedback from clients or users |
| Navigate the world of work | 1.3 | • Takes personal responsibility for following explicit and implicit policies, procedures and technical requirements |
| Interact with others | 1.5, 4.1 | • Selects and uses appropriate conventions and protocols when communicating with clients and others in a range of work contexts |
| Get the work done | 1.1, 1.2, 1.4, 2.1-2.4, 3.1-3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS425 Configure and troubleshoot operating system software | ICASAS425A Configure and troubleshoot operating system software | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS425 Configure and troubleshoot operating system software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the appropriate operating system
- install, configure and test an operating system (OS)
- improve system performance with minimum disruption to clients
- identify faults and rectify with utilities and tools
- instruct the client or users on the changes in OS
- seek client and user feedback.

Note: Evidence must be provided in at least TWO organisations or situations.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the requirements of different operating systems
- outline the architecture of current technical systems
- identify and describe the key current industry accepted hardware and software products
- describe the functions and features of the OS used by the organisation
- describe the installation and configuration of systems software including:
  - organisational requirements for OS software
  - prerequisites for system software installation
  - set-up and configuration procedures
  - software packages supported by the organisation
  - system’s current functionality
  - system’s diagnostic software
  - vendor specifications and requirements for installation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the systems and administration support field of work, and include access to special purpose tools, equipment, materials and industry software packages including:

- personal computer where installation may be performed
- OS software
- technical documentation
- organisational documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to troubleshoot problems and apply systematic processes to fault finding across a wide range of information and communications technology (ICT) disciplines.

It applies to individuals who apply a systematic approach to finding faults, troubleshooting problems and solving issues in a wide range of ICT related areas.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Choose the most appropriate fault finding method | 1.1 Develop a troubleshooting process to help resolve problems<br>1.2 Analyse and document the system that requires troubleshooting<br>1.3 Identify available fault finding tools and determine the most appropriate for the identified problem<br>1.4 Obtain the required fault finding tools |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Identify legislation, health and safety requirements, codes, regulations and standards related to the problem area |
| 2. Analyse the problem to be solved | 2.1 Collect data relevant to the system<br>2.2 Analyse the data to determine if there is a problem and the nature of the problem<br>2.3 Determine specific symptoms of hardware, operating system and printer problems |
| 3. Identify a solution and rectify the problem | 3.1 Formulate a solution and make provision for rollback<br>3.2 Systematically test variables until the problem is isolated<br>3.3 Rectify the problem<br>3.4 Create a list of probable causes of the problem |
| 4. Test system and complete documentation | 4.1 Test the system to ensure the problem has been solved and record results<br>4.2 Identify and implement common preventative maintenance techniques to support ongoing maintenance strategies<br>4.3 Document the signs and symptoms of the problem and its solution, and load to database of problems or solutions for future reference |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.5, 2.1, 2.2 | • Identifies, analyses and evaluates technical textual information and technical system data to source solutions and determine necessary actions |
| Writing | 1.2, 3.4, 4.1, 4.3 | • Records specific information relating to issues and outcomes in a sequential manner using correct grammar and spelling |
| Navigate the world of work | 1.5 | • Identifies and complies with organisational and legislative requirements |
| Get the work | 1.1-1.5, 2.1-2.3, | • Takes responsibility for planning, sequencing and |


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| | | |
|---|---|---|
| done | 3.1-3.4, 4.1-4.3 | prioritising tasks and own workload for efficiency and effective outcomes<br>• Applies analytical processes to resolve technical or conceptual problems<br>• Uses the main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults | ICASAS426A Locate and troubleshoot IT equipment, system and software faults | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the most appropriate fault finding method
- document the troubleshooting process
- analyse and identify faults
- obtain suitable tools and equipment
- apply simple checks, tests and fault finding methodologies
- apply the recommended means to rectify fault and document results.

Note: Evidence must be provided for at least TWO organisations or situations.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain client support and maintenance practices
- identify and describe current industry accepted hardware and software products, including features and capabilities
- discuss the system's current functionality, including details of the proposed system modifications
- describe one or more change management tools
- explain the key features of quality assurance practices with regard to locating and troubleshooting information and communications technology (ICT) equipment, system and software faults
- outline the change control procedures of the organisation
- describe a range of trouble shooting methodologies and system testing tools
- list and describe common symptoms of faulty ICT equipment
- identify and describe legislative, regulatory, standards or codes of practice that impact on the ICT service sector.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to special purpose tools, equipment, materials and industry software packages including:

- system to be diagnosed
- diagnostic and fault finding tools
- technical and system documentation
- organisational requirements for documenting solution.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS501 Develop, implement and evaluate an incident response plan

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop and implement an incident response plan. The results of the incident response plan must be evaluated if they affect the mission of the organisation.

It applies to individuals who apply high-level technical skills and specialised knowledge to provide broad support functions in maintaining network service.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop the incident response program | 1.1 Develop the incident management policy<br>1.2 Identify services the incident response team should provide<br>1.3 Create incident response plans according to security policy and organisational goals<br>1.4 Develop procedures for incident handling and reporting |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Create incident response exercises and red-teaming activities<br>1.6 Develop specific processes for collecting and protecting forensic evidence during incident response<br>1.7 Specify incident response staffing and training requirements<br>1.8 Establish the response program |
| 2. Implement the incident response program | 2.1 Apply response actions in reaction to security incidents according to established policy, plans and procedures<br>2.2 Respond to and report incidents<br>2.3 Assist in collecting, processing and preserving evidence according to requirements<br>2.4 Execute incident response plans<br>2.5 Execute red-teaming activities and incident response exercises<br>2.6 Ensure lessons learned from incidents are collected in a timely manner and are incorporated into review plans<br>2.7 Collect, analyse and report incident management measures |
| 3. Evaluate the incident response program | 3.1 Assess efficiency and effectiveness of incident response program activities and implement changes as required<br>3.2 Examine effectiveness of red teaming and incident response tests, training and exercises<br>3.3 Assess effectiveness of communication between incident response team and related internal and external organisations, implementing changes where appropriate<br>3.4 Identify and implement improvements based on assessments of effectiveness |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Analyses textual information and data to determine necessary actions |
| Writing | 1.1, 1.3, 1.4, 1.6-1.8, | • Uses clear and accurate language and documentation formats appropriate to the task |


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| | | |
|---|---|---|
| | 2.2, 2.6, 2.7 | |
| Oral Communication | 1.7, 2.2 | • Uses clear and accurate language to provide and obtain information relevant to the task |
| Numeracy | 1.3, 2.7 | • Accurately interprets, analyses and documents numerical and technical system data<br>• Uses mathematical equations to calculate data for technical reports |
| Navigate the world of work | 1.3, 1.4, 1.6, 2.1 | • Works autonomously, making high-level decisions to achieve and improve organisational goals<br>• Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are met<br>• Monitors and reviews the organisations policies, procedures and adherence to legislative requirements in order to implement and manage change |
| Interact with others | 1.7, 2.2, 3.3 | • Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships<br>• Influences and fosters a collaborative culture facilitating a sense of commitment and workplace cohesion<br>• Understands diversity and seeks to integrate diversity into the work context for managing change, making decisions and achieving shared outcomes |
| Get the work done | 1.1-1.6, 1.8, 2.1-2.4, 2.6, 2.7, 3.1-3.4 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause<br>• Explores new and innovative ideas to develop and improve performance |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS501 Develop, implement and evaluate an incident response plan | ICASAS501A Develop, implement and evaluate an incident response plan | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS501 Develop, implement and evaluate an incident response plan

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop and document an incident response program
- respond to an incident response activation and operation
- evaluate the incident response.

Note: Evidence must be provided on at least TWO occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the key features of:
  - client business domain
  - relevant workplace procedures and legislative requirements when formulating prevention and recovery strategy
  - systems engineering when evaluating threats
- analyse and describe:
  - backup methodologies
  - specific components of the business planning process relevant to the development of information and communications technology (ICT) business solutions
  - system functionality of a current business.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work and include access to:


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- ICT business specifications
- information on the security environment, including relevant laws and legislation
- existing organisational security policies, organisational expertise and knowledge
- possible security environment, including threats to security that are, or are held to be, present in the environment
- risk analysis tools and methodologies
- ICT security assurance specifications
- incident scenarios.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS502 Establish and maintain client user liaison

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish and maintain client user liaison in an information and communications technology (ICT) environment, post support implementation. This occurs after the business critical functions have been determined.

It applies to individuals who are responsible for system and business analysis and administration, and liaising with clients to ensure that their requirements are fully met.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine support areas | 1.1 Identify and record information communications technology used in the organisational unit<br>1.2 Identify stakeholders of the system<br>1.3 Identify organisational structure, culture and politics related to support requirements<br>1.4 Determine the level of support required by each organisational |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | unit |
| 2. Develop support procedures | 2.1 Contact organisational units as required to verify support needs<br>2.2 Establish procedures for providing required support, including method of contact, frequency of meetings and reporting<br>2.3 Document agreed procedures or service level agreement (SLA) |
| 3. Assign support personnel | 3.1 Identify ICT skills required to assist each organisational unit with support activities<br>3.2 Assign personnel according to human resource processes<br>3.3 Verify availability of selected personnel<br>3.4 Provide support using agreed procedures<br>3.5 Obtain feedback from appropriate persons on a regular basis |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 3.1 | • Comprehends textual information and numerical data to determine and adhere to required actions |
| Writing | 1.1, 2.1, 2.3, 3.3, 3.5 | • Records key information in the required format and layout, and develops material to a specific audience using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 2.1, 3.3, 3.5 | • Uses appropriate language, tone and pace to interact effectively with others, and listening and questioning techniques to obtain feedback relevant to the task |
| Navigate the world of work | 3.2, 3.4 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies organisational implications of new legislation or regulation<br>• Seeks to improve policies and procedures to better meet organisational goals |
| Interact with others | 2.1, 3.2, 3.3, 3.5 | • Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |


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| | | |
|---|---|---|
| | | • Influences and fosters a collaborative culture, and facilitates a sense of commitment and workplace cohesion |
| Get the work done | 1.4, 2.1, 2.2, 3.4, 3.5 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS502 Establish and maintain client user liaison | ICASAS502A Establish and maintain client user liaison | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS502 Establish and maintain client user liaison

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish and maintain client liaison
- establish and document procedures for providing required support
- identify information and communications technology (ICT) skill requirements
- assign appropriate support personnel.

Note: Evidence must be provided in at least TWO ICT environments.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- specify adequate response times for providing services
- analyse the role of stakeholders in the organisation, and their level of dependence on ICT infrastructure
- explain the capabilities of a range of ICT devices
- research and evaluate current industry accepted hardware and software products
- identify and describe equipment that is vital in supplying business critical services, including:
  - internet file transaction security for client accounts
  - web server for e-business
- describe in detail the areas related to the organisation’s services and the ICT system functionality required to supply the essential and desirable services to the organisation
- describe the quality assurance practices relating to the supplied service and service level agreements (SLAs)
- analyse the role of ICT in the client's business domain
- identify and describe server types to provide:
  - application


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- backup
- email
- firewall
- proxy
- web.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- agreed procedures or SLAs
- documented support requirements
- technical records and documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS503 Perform systems tests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure that the properties of the entire system are tested and proved adequate before handover to the client or user for final acceptance testing.

It applies to experienced individuals employed in a range of information and communications technology (ICT) work environments who apply specialised and technical knowledge and systematic approaches to testing and fault finding.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for test | 1.1 Prepare test environment<br>1.2 Determine software life cycle<br>1.3 Define test plan and appropriate test tools<br>1.4 Recognise and separate the system into runnable modules that mirror live scenarios |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Gather and prepare logs and result sheets<br>1.6 Notify operations of scheduled test to ensure preparedness and understanding of implications for operations<br>1.7 Test scripts for online test or test run for batch test<br>1.8 Conduct walk-through to review expected results against acceptance criteria and system requirements documentation |
| 2. Conduct test | 2.1 Run test scripts and document results according to test and acceptance processes<br>2.2 Perform required quality benchmarks or comparisons for acceptance testing<br>2.3 Adopt organisation and industry standards<br>2.4 Compare actual results to expected results on completion of each system unit, and complete result sheets |
| 3. Analyse and classify results | 3.1 Summarise and classify results, highlighting critical or urgent areas of concern, and prepare report<br>3.2 Compare results against requirements<br>3.3 Notify operations of test completion<br>3.4 Log attendees' details or comments and gain required signatures<br>3.5 Schedule feedback meeting to discuss report and possible next actions with stakeholders, if necessary<br>3.6 Ensure test reporting complies with documentation and reporting standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.8, 2.2-2.4, 3.1, 3.2 | • Interprets and analyses a range of textual information and numerical data to determine necessary actions |
| Writing | 1.5, 1.6, 2.1, 2.4, 3.1, 3.4, 3.6 | • Uses clear language to record and report technical information, and checks for accuracy at all times<br>• Uses writing style and documentation formats |


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| | | |
|---|---|---|
| | | appropriate to the task |
| Oral Communication | 1.6, 3.3, 3.5 | • Uses clear and accurate language to provide and obtain information relevant to the task |
| Numeracy | 1.5, 1.8, 2.2, 2.4, 3.1 | • Uses mathematical equations to calculate financial and technical data<br>• Accurately records, analyses and documents numerical and technical system data |
| Navigate the world of work | 2.3, 3.6 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies organisational implications of new legislation or regulation |
| Interact with others | 1.6, 3.3, 3.5 | • Influences and fosters a collaborative culture and facilitates a sense of commitment and workplace cohesion<br>• Uses a variety of relevant communication tools and strategies to build and maintain effective working relationships |
| Get the work done | 1.1, 1.3-1.5, 1.7, 1.8, 2.1, 2.2, 3.1, 3.5 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Applies systematic and analytical decision making processes for complex and non-routine situations<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS503 Perform systems tests | ICASAS503A Perform systems tests | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS503 Perform systems tests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- test the operation and consistency of the total system prior to delivery according to system requirements, including testing:
  - performance
  - security
  - configuration sensitivity
  - start-up and recovery from failure modes
- analyse test results
- prepare reports in compliance with documentation and reporting standards.

Note: Evidence must be provided on at least TWO occasions or systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast the key features and processes of automated test tools
- analyse input and output requirements
- describe organisational practice and rules for preparing test
- describe particular system requirements and key features
- analyse underlying test data
- Identify and summarise industry standards appropriate to performing system tests.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:


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- requirements and design documents
- human resources
- hardware and environments for system test use (all testing to be carried out on the same platform as the completed system; scheduled testing to be on the production platform; production environment is required as part of test preparation)
- system or application suitable for testing.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS504 Develop and conduct client acceptance test

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan and conduct acceptance testing as part of the process whereby clients will determine whether to accept the system.

It applies to experienced individuals working in a range of information and communications technology (ICT) environments, who apply specialised and technical knowledge in the development of strategic initiatives and in performing or organising others to complete complex technical operations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify acceptance criteria and develop test plan | 1.1 Review system requirements documentation and project plans to identify mandatory system objectives and optional criteria, and conditions for system acceptance<br>1.2 Develop test plan based on system requirements<br>1.3 Review and validate test plan based on mandatory criteria, conditions, and system objectives and requirements<br>1.4 Communicate test plan to client and prepare client for |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | acceptance test<br>1.5 Notify appropriate person of the scheduled acceptance test |
| 2. Perform functional testing on software modules | 2.1 Prepare test environment for client use<br>2.2 Perform testing according to test plan and documentation<br>2.3 Execute each test cycle<br>2.4 Document errors, difficulties and problems |
| 3. Validate test results against expected results | 3.1 Record and investigate discrepancies and corrections according to project procedures and timeframe<br>3.2 Brief client on outcomes to ensure client understands test results<br>3.3 Monitor system performance as required<br>3.4 Reschedule required code changes or modifications |
| 4. Obtain sign-off and acceptance | 4.1 Confirm test results with client<br>4.2 Identify and document client concerns over system operation<br>4.3 Identify possible solutions to concerns and notify appropriate development staff as required<br>4.4 Confirm client approval and obtain sign-off<br>4.5 Seek and formalise agreement of involved parties regarding the rescheduling of further required maintenance |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3 | • Interprets and analyses textual information and data from a range of sources to determine necessary testing and actions |
| Writing | 1.2, 1.4, 1.5, 2.4, 3.1, 3.2, 4.1-4.5 | • Uses clear and accurate language and documentation formats appropriate to different audiences/purposes to convey technical information |
| Oral | 1.4, 1.5, 3.2, 4.1-4.5 | • Uses clear and accurate language to convey technical information to a range of personnel |


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| | | |
|---|---|---|
| Communication | | • Uses questioning and listening techniques to confirm understanding of testing arrangements |
| Numeracy | 1.1, 2.4, 3.1, 4.1 | • Uses mathematical equations to calculate financial and technical data and to organise schedules<br>• Accurately interprets, analyses and documents numerical and technical system data |
| Navigate the world of work | 1.3 | • Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.4, 1.5, 3.2, 4.1-4.5 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact<br>• Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships<br>• Influences and fosters a collaborative culture and facilitates a sense of commitment and workplace cohesion |
| Get the work done | 1.1, 1.2, 2.1-2.3, 3.1, 3.3-3.5 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS504 Develop and conduct client acceptance test | ICASAS504A Develop and conduct client acceptance test | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS504 Develop and conduct client acceptance test

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a test plan based on system requirements and acceptance criteria
- undertake functional testing
- validate results and obtain client sign-off acceptance.

Note: Evidence must be provided on at least TWO systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast the key features and processes of automated test tools
- analyse key aspects of business rules and standards
- discuss client user requirements
- analyse the system or application being tested
- describe a range of testing techniques.
-

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- business requirements
- project documentation, including:
  - templates
  - standards


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  - specifications
  - client user and technical manuals
  - test plan
- technical components of system, including:
  - software
  - hardware
  - network
- staffing resources, including development, operations and client user representatives
- system application suitable for testing
- functional test cases to satisfy the agreed acceptance criteria (acceptance tests relate to the functionality of the system as stated in the requirements specification).

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS505 Review and update disaster recovery and contingency plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse the impact of the system on the organisation and carry out risk analysis, disaster recovery and contingency planning.

It applies to individuals who apply a wide range of higher level technical skills and systematic problem solving approaches in information and communications technology (ICT) related areas.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate impact of system on business continuity | 1.1 Identify business critical functions and the security environment from documentation and from discussion with business area and project team<br>1.2 Identify critical data and software from documentation<br>1.3 Assess potential impact of business risk and threats on ICT systems |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Identify and evaluate statutory requirements, commercial requirements and contingency possibilities according to specifications and cost constraints |
| 2. Evaluate threats to system | 2.1 Identify threats to the system, considering security analysis and internal and external business environment<br>2.2 Evaluate risk minimisation alternatives against specifications and cost constraints |
| 3. Formulate prevention and recovery strategy | 3.1 Evaluate prevention and recovery options to support critical business functions against business specifications and cost constraints<br>3.2 Review current operational procedures to ensure adequate risk safeguards and contingency plans are in place<br>3.3 Submit disaster recovery and prevention strategy to appropriate person for approval |
| 4. Develop disaster recovery plan to support strategy | 4.1 Identify and document resources required for disaster recovery according to specifications and cost constraints<br>4.2 Identify and document processes required for disaster strategy according to project standards<br>4.3 Identify cut-over criteria before initiating disaster plan<br>4.4 Document disaster recovery plan and submit to appropriate person for review and sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 3.2, 4.1, 4.3 | • Researches and analyses textual information and technical data/specifications from a range of documentation and sources to inform the development of contingency plans |
| Writing | 3.3, 4.1,4.2, 4.4 | • Uses clear and accurate language and formats appropriate to the task to convey explicit technical information, systems data requirements and recommendations |


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| | | |
|---|---|---|
| Oral Communication | 1.1 | • Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning |
| Numeracy | 1.2, 1.4, 4.4 | • Accurately interprets, analyses and documents numerical, financial and technical system data |
| Navigate the world of work | 1.4, 2.1, 3.2, 4.2 | • Develops and implements strategies to ensure organisational policies, procedures and regulatory requirements are met<br>• Monitors and reviews the organisations policies, procedures and adherence to legislative requirements to implement and manage change |
| Interact with others | 1.1, 3.3, 4.4 | • Uses relevant communication tools and strategies in building and maintaining effective working relationships<br>• Influences and fosters a collaborative culture that facilitates a sense of commitment and workplace cohesion |
| Get the work done | 1.1, 1.3, 1.4, 2.1, 2.2, 3.1, 3.2 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS505 Review and update disaster recovery and contingency plans | ICASAS505A Review and update disaster recovery and contingency plans | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS505 Review and update disaster recovery and contingency plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a contingency plan that identifies threats and minimises down time for business critical functions
- develop clear and specific directions on how to handle serious down time
- coordinate, plan and articulate flexible logistics requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast backup methodologies
- explain the business planning process relevant to the development of information and communication technology (ICT) business solutions
- analyse the client business domain
- evaluate disaster recovery plan strategies and components, including:
  - physical security
  - system failure, accident or sabotage (hackers)
  - denial of service
  - virus attack
  - cyber attack
  - telecommunications failure
  - contingency arrangements
- interpret and analyse key workplace health and safety, legislative and organisational requirements relevant to the task
- evaluate the organisation’s current systems functionality and systems engineering.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- vulnerability assessment and general definition of requirements
- acceptance test plan
- business impact analysis
- information technology security assurance specifications
- relevant statutory documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS506 Update ICT system operational procedures

## Modification History

| | |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to assess, update and document the operational procedures required to use the information and communications technology (ICT) system.

It applies to individuals who apply technical and specialised knowledge and systematic approaches to documentation in a range of ICT related areas.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| **ELEMENT** | **PERFORMANCE CRITERIA** |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Assess technical and user documentation | 1.1 Review current versions of technical and user documentation<br>1.2 Compare accuracy of technical and user documentation with current system functionality<br>1.3 Identify and document inaccuracies in the documentation |
| 2. Update procedures | 2.1 Determine operational procedure requirements using review outcomes<br>2.2 Develop or update operating procedures for the system |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Submit proposed operating procedures to appropriate person |
| 3. Update documentation | 3.1 Review feedback and make appropriate changes<br>3.2 Update technical and user documentation to incorporate changes<br>3.3 Submit technical and user documentation to appropriate person for final approval<br>3.4 Distribute technical and user documentation as agreed with appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 3.1 | • Interprets and analyses textual information and data to compare accuracy of content documentation and determine necessary actions |
| Writing | 1.3, 2.2, 3.1, 3.2 | • Develops material containing specific requirements using clear and technical language<br>• Organises content and version control in a manner that supports the purpose of the document |
| Numeracy | 1.1, 1.2 | • Accurately interprets, analyses and documents numerical and technical system data |
| Interact with others | 2.3, 3.3, 3.4 | • Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships |
| Get the work done | 1.2, 2.1, 2.2, 3.1, 3.3, 3.4 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS506 Update ICT system operational procedures | ICASAS506A Update IT system operational procedures | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS506 Update ICT system operational procedures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse system functionality
- review and update technical and user documentation for at least TWO systems or occasions
- develop procedures to operate systems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain
- explain current business practices related to preparing reports
- compare and contrast the key features and capabilities of current industry accepted hardware and software products
- describe documentation standards and tools
- discuss the role of stakeholders and the degree of stakeholder involvement.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- system or project related documentation


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- staffing resources
- documentation tools.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS507 Implement and evaluate systems for regulatory and standards compliance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement and evaluate the application of the principles, policies and procedures that enable an enterprise to meet applicable information security laws, regulations and standards to satisfy statutory requirements, perform industry-wide best practices, and achieve its information security program goals.

It applies to individuals who apply specialised and technical knowledge in developing strategic initiatives in an information and communications technology (ICT) work environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Implement compliance systems | 1.1 Monitor and assess the information security compliance practices of personnel according to enterprise policy and procedures |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Maintain ongoing and effective communications with key compliance stakeholders<br>1.3 Conduct internal audits to determine if information security control objectives, controls, processes, and procedures are effectively applied and maintained, and perform as expected |
| 2. Evaluate compliance systems | 2.1 Assess the effectiveness of enterprise compliance program controls against appropriate benchmarks<br>2.2 Assess the effectiveness of information security compliance process and procedures for process improvement and implement changes where appropriate<br>2.3 Compile, analyse and report performance measures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1 | • Interprets and analyses a range of complex textual information and data to determine necessary actions |
| Writing | 1.2, 2.3 | • Uses clear, accurate and concise language and appropriate formats to convey complex content for a range of audiences |
| Oral Communication | 1.1, 1.2, 2.3 | • Uses clear and precise language to explain and present information and obtain feedback relevant to the task and audience |
| Numeracy | 1.3 | • Accurately interprets, analyses and documents numerical and technical system data |
| Navigate the world of work | 1.1, 1.3, 2.1 | • Monitors and reviews the organisations policies, procedures and adherence to legislative requirements<br>• Develops and implements strategies to ensure organisational policies, procedures and regulatory requirements are met |
| Interact with others | 1.2 | • Selects, implements and manipulates communications systems, processes and practices for maximum impact |
| Get the work done | 1.1, 1.3, 2.1-2.3 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse |


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| | | |
|---|---|---|
| | | environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS507 Implement and evaluate systems for regulatory and standards compliance | ICASAS507A Implement and evaluate systems for regulatory and standards compliance | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS507 Implement and evaluate systems for regulatory and standards compliance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- monitor and assess information security compliance
- conduct internal audits
- assess the effectiveness of enterprise compliance
- compile, analyse and report performance measures.

Note: Evidence must be provided on at least TWO occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain
- compare and contrast the key security features and capabilities of current industry accepted hardware and software products
- research and report on the key features of legislation relating to information and communications technology (ICT) security
- evaluate the operating system, including strengths and weaknesses over lifetime of product
- discuss privacy issues and legislation relating to integrating legal requirements with ICT security.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- ICT business specifications


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- information on the security environment, including laws or legislation, existing organisational security policies, organisational expertise and knowledge
- possible security environment, which includes threats to security that are, or are held to be, present in the environment
- risk analysis tools and methodologies
- ICT security assurance specifications.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS509 Provide client ICT support services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to liaise with client users while providing information and communications technology (ICT) support.

It applies to individuals who apply high level technical and specialised knowledge in assisting users.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify support procedures | 1.1 Identify support required by client<br>1.2 Review support-call documentation to identify client contact person<br>1.3 Review service level agreement (SLA) and appropriate procedures to determine action, and include escalation procedures<br>1.4 Verify support requirements with client contact |
| 2. Undertake support | 2.1 Provide support activity required by the client |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Maintain communication with client contact throughout support activity by email, phone or other specific process<br>2.3 Document action taken for support activity<br>2.4 Acknowledge protocol differences during support activity |
| 3. Gather feedback | 3.1 Submit resolution documentation to client contact<br>3.2 Contact client to determine satisfaction with support process<br>3.3 Conduct follow up action, as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3 | • Analyses textual information and data to determine client support |
| Writing | 1.4, 2.2-2.4, 3.1, 3.2 | • Uses clear and accurate language, and documentation formats appropriate to the task |
| Oral Communication | 1.4, 2.2, 2.4, 3.2 | • Obtains information by listening and questioning, and participates in verbal exchanges of information and solutions using concise and clear language |
| Numeracy | 1.3, 2.3, 3.1 | • Accurately interprets, analyses and documents numerical and technical system data |
| Navigate the world of work | 1.3 | • Reviews the organisation's policies, procedures and adherence to legislative requirements in order to implement and manage change |
| Interact with others | 1.4, 2.2 | • Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships |
| Get the work done | 1.1, 1.3, 2.1, 3.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking |


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| | | |
|---|---|---|
| | | techniques experience and knowledge to focus in on root causes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS509 Provide client ICT support services | ICASAS509A Provide client IT support services | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS509 Provide client ICT support services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- undertake support services, including:
  - identifying support requirements and procedures
  - client contact
  - documenting support provided
  - liaise with user to obtain feedback
  - act on feedback as appropriate.

Note: Evidence must be provided for at least TWO clients.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain and importance of client contact
- compare and contrast the key features and capabilities of current industry accepted hardware and software products
- explain help desk and maintenance practices
- describe quality assurance practices relating to information and communications technology (ICT) support
- discuss the role of stakeholders and degree of stakeholder involvement
- evaluate current system functionality
- describe the structure and purpose of service level agreements (SLAs).


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- SLAs
- escalation procedure/s
- documentation processes.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS510 Review and develop ICT maintenance strategy

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to review, develop and set up maintenance strategies and supporting processes to achieve continuity of information and communications technology (ICT) operations and business functions.

It applies to individuals who apply specialised and technical knowledge in developing strategic initiatives and in performing or organising others to complete complex technical operations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify and analyse maintenance needs | 1.1 Identify risks to business continuity due to system malfunction, including quantification of possible loss<br>1.2 Identify core business functions and determine the service requirements for those functions<br>1.3 Develop a maintenance philosophy to meet business needs and apply it to dealings with the client |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Identify and analyse IT system components to be maintained | 2.1 Review systems architecture and configuration documentation for currency<br>2.2 Conduct an equipment and software audit if appropriate information is not available<br>2.3 Determine and document the warranty status of components and software according to vendor, project or organisational requirements<br>2.4 Identify critical components and software, and document recommendations regarding possible service arrangements |
| 3. Develop service level agreements | 3.1 Determine the views and requirements of the client in order to identify maintenance requirements<br>3.2 Prepare service level agreements (SLAs) to match client user and business requirements |
| 4. Formulate maintenance strategy | 4.1 Examine maintenance options against cost constraints, risks to business continuity and SLAs<br>4.2 Identify a specific maintenance strategy based on cost, business and SLA requirements<br>4.3 Create a preventative maintenance schedule based on cost, business and SLA requirements<br>4.4 Negotiate a maintenance strategy with client and make changes to SLAs where necessary<br>4.5 Document the recommended procedure for approval from appropriate person according to organisational requirements |
| 5. Define client and supplier processes and standards | 5.1 Negotiate and create reporting procedures for service requests with client and suppliers<br>5.2 Determine response time standards with client and suppliers<br>5.3 Create escalation procedures with client and suppliers<br>5.4 Set up the help desk or other support function according to agreed standards and procedures and in line with industry best practices |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.3, 2.4, 4.1 | • Interprets and analyses technical specifications and data and textual information from a range of sources to develop maintenance strategy |
| Writing | 3.1, 3.2, 4.4, 4.5, 5.1-5.3 | • Uses clear and accurate language and documentation formats appropriate to different audiences/purposes to convey technical and business information |
| Oral Communication | 3.1, 4.4, 5.1-5.4 | • Obtains information by listening and questioning and participates in verbal exchanges of information |
| Numeracy | 1.1, 4.1-4.3, 5.1, 5.2 | • Uses mathematical equations to calculate financial and technical data and to organise schedules<br>• Accurately interprets, analyses and documents numerical and technical system data |
| Navigate the world of work | 2.3, 4.5, 5.4 | • Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are met<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements to implement and manage change |
| Interact with others | 3.1, 4.4, 4.5 | • Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships and negotiating solutions<br>• Influences and fosters a collaborative culture to facilitate a sense of commitment and workplace cohesion |
| Get the work done | 1.1-1.3, 2.1-2.4, 4.2-4.4, 5.1-5.4 | • Develops plans to manage relatively complex routine and non-routine tasks with an awareness of how they might contribute to broader strategy and goals<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Makes high impact decisions in a complex and diverse environment, using input from a range of sources<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge to focus in on the root cause |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS510 Review and develop ICT maintenance strategy | ICASAS510A Review and develop IT maintenance strategy | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS510 Review and develop ICT maintenance strategy

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and analyse maintenance needs
- determine maintenance strategies
- implement support processes for maintaining the continuity of information and communications technology (ICT) operations and business functions
- define standards required for helpdesk support.

Note: Evidence must be provided for at least TWO clients.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain and the features of the ICT system that support the client's business activity
- describe the key features of current industry accepted hardware and software products
- explain the information found in product warranty and service difficulty records
- research and document helpdesk and maintenance practices, including general composition and operation of information database for tracking hardware, software and operational issues
- describe how the system has been set up to process data and what data elements are stored
- explain quality assurance practices with reference to maintenance, warranty and repair of network equipment and software
- discuss relationships between the stakeholders and the service provider.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment, materials and industry software packages
- systems architecture documentation and
- warranty documents.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS511 Prioritise ICT change requests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse and prioritise change requests as part of managing information and communications technology (ICT) systems that undergo continual change.

It applies to experienced individuals who provide technical advice, guidance and leadership in resolution of specified problems, and may have responsibility for organising others.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Classify and monitor change requests | 1.1 Receive and record change requests from the client or other sources<br>1.2 Classify and prioritise change requests according to business guidelines and service level agreements (SLAs) |
| 2. Determine priority settings | 2.1 Identify risks to business continuity and prioritise changes that reduce risks for implementation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Evaluate costs and benefits of implementing changes against the current system<br>2.3 Examine benefits and costs of how and when a change is made, including risks to business continuity<br>2.4 Schedule change analysis according to business down periods and periods of business-critical activities |
| 3. Develop change analysis work plan to develop and implement changes | 3.1 Analyse similar change requests that might be developed and implemented simultaneously<br>3.2 Determine impact to the system and organisation of methodology and timing of change<br>3.3 Notify reason for the change to key stakeholders<br>3.4 Determine resources necessary to carry out the change development, taking into account time and cost constraints<br>3.5 Develop a change plan based on change analysis<br>3.6 Review change-plan documentation to ensure it is completed according to system documentation standards<br>3.7 Forward change plan to appropriate person for consideration and decision |
| 4. Confirm change plan is complete and satisfies client | 4.1 Conduct feedback session with client groups to ensure change requirements are satisfactory<br>4.2 Complete follow-up work and make recommendations for changes in procedures or documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.3, 3.1, 3.6 | • Interprets and analyses technical specifications and data and textual information from a range of sources to develop maintenance strategy |
| Writing | 1.1, 3.3, 3.5-3.7, 4.2 | • Uses clear and accurate language and documentation formats appropriate to different audiences/purposes to convey technical and business information |


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| | | |
|---|---|---|
| Oral Communication | 1.1, 3.3, 3.7, 4.1, 4.2 | • Facilitates groups to present and collect information and gain consensus on concepts<br>• Obtains information by listening and questioning and participates in verbal exchanges of information to negotiate solutions appropriate to a range of personnel and situations |
| Numeracy | 2.2-2.4, 3.1, 3.2, 3.4, 3.6 | • Uses mathematical equations to calculate financial and technical data and organise schedules<br>• Accurately interprets, analyses and documents numerical and technical system data |
| Interact with others | 3.3, 3.7, 4.1 | • Identifies and uses appropriate conventions and protocols when communicating with colleagues and stakeholders |
| Get the work done | 1.2, 2.1-2.4, 3.1-3.6, 4.2 | • Develops plans to manage relatively complex routine and non-routine tasks with an awareness of how they might contribute to broader strategy and goals<br>• Uses problem solving techniques to analyse required outcomes in order to manage change to ICT systems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS511 Prioritise ICT change requests | ICASAS511A Prioritise IT change requests | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS511 Prioritise ICT change requests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review change requests and prioritise according to business guidelines and service level agreements (SLAs)
- evaluate cost-benefit analysis, including risks to business continuity
- develop change analysis work plan
- review change procedures and make appropriate recommendations.

Note: Evidence must be provided for at least TWO clients or situations.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the client business domain
- analyse help desk and maintenance practices
- explain the quality assurance practices relating to information and communications technology (ICT) system changes
- discuss the role of stakeholders and the degree of stakeholder involvement
- compare and contrast key features and capabilities of current industry accepted hardware and software products, including change management tools
- analyse the system's current functionality
- describe the purpose and features of SLAs.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:


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- special purpose tools, equipment and materials
- industry software packages
- sites on which change requests may be coordinated
- SLAs currently used in industry
- business guidelines.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS512 Review and manage delivery of maintenance services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to review and manage the delivery of maintenance services.

It applies to individuals with managerial experience and responsibility for supervising individuals working under their direct or indirect supervision.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review service standards | 1.1 Review service level agreements (SLAs)<br>1.2 Identify actual fault reporting and restoration performance, and compare with SLAs to ensure they meet requirements<br>1.3 Record areas of discrepancy |
| 2. Review infrastructure | 2.1 Identify internal support and maintenance options<br>2.2 Undertake a review of infrastructure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Record areas of discrepancy |
| 3. Determine and implement solutions | 3.1 Compare service standards and infrastructure discrepancies, and identify gaps in existing service<br>3.2 Document discrepancies identified<br>3.3 Determine cost effective solutions and impact<br>3.4 Implement solutions |
| 4. Organise reviews | 4.1 Determine guidelines for regular reviews with stakeholders<br>4.2 Undertake reviews as per agreed guidelines<br>4.3 Document review process and submit to the stakeholder<br>4.4 Ensure effective reporting procedures are in place and used |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.1 | • Evaluates textual and numerical information from a range of documentation to inform maintenance requirements and solutions |
| Writing | 1.3, 2.1, 2.3, 3.2, 4.1, 4.3 | • Uses clear and precise language and document formats appropriate to the task to convey explicit information and instructions |
| Numeracy | 3.3 | • Calculates and compares whole numbers and decimals to estimate projected costs against budgets |
| Navigate the world of work | 3.4, 4.2, 4.4 | • Works independently and collectively in making decisions to achieve organisation outcomes in maintenance service delivery |
| Get the work done | 1.2, 2.1, 2.2, 3.1, 3.3, 3.4, 4.1-4.4 | • Accepts responsibility for planning, prioritising and sequencing complex tasks and workload<br>• Uses problem solving techniques to analyse required outcomes in order to manage maintenance-service delivery |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS512 Review and manage delivery of maintenance services | ICASAS512A Review and manage delivery of maintenance services | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS512 Review and manage delivery of maintenance services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and report on faults and restoration performance
- comply with service level agreement (SLA)
- review infrastructure and document discrepancies
- analyse and prioritise requests according to business requirements
- implement cost effective solutions and evaluate impact.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe and explain business scheduling requirements
- discuss capacity planning and change-control procedures
- compare and contrast current industry accepted hardware and software products, including their general features and capabilities
- outline key features of the client business domain
- evaluate help desk and maintenance practices
- analyse the role of stakeholders and the degree of stakeholder involvement
- describe the system's current functionality and the features and functions of system under modification.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- sites on which review of maintenance-services delivery may be conducted
- established ICT service infrastructure
- SLAs and business guidelines.

Assessor must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS513 Develop detailed test plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan for testing information and communications technology (ICT) systems, including software development, systems administration, networking, and web development, by collating documentation of conditions and expected results sufficiently to allow for thorough system testing.

It applies to individuals who use technical and specialised knowledge and systematic approaches in performing or organising others to complete complex technical testing operations.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare test environment and gather tools | 1.1 Determine structure of system and user accounts to understand the test environment<br>1.2 Determine areas to test and test objectives, according to organisational standards<br>1.3 Ensure accessibility of documentation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Notify user representatives or approval authorities of objectives and scheduled test<br>1.5 Notify operations staff of scheduled test to ensure preparedness and an understanding of implications |
| 2. Prepare test data | 2.1 Gather test schedules according to organisational standards<br>2.2 Correlate schedules with related functionality according to organisational standards<br>2.3 Check testing schedule prior to validation according to organisational standards<br>2.4 Prepare test drivers or stubs for test harness according to organisational standards<br>2.5 Register test plan and initiate log entries according to organisational standards |
| 3. Complete test plan and acceptance processes | 3.1 Use software metrics where appropriate<br>3.2 Validate test and acceptance processes<br>3.3 Ensure documentation and reporting comply with test plan and quality benchmarks |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1-2.3 | • Analyses and evaluates textual and numerical information from a range of documentation to determine required action |
| Writing | 1.4, 1.5, 3.3 | • Uses clear and precise language and document formats appropriate to the audience and task to convey explicit information and instructions |
| Oral Communication | 1.4, 1.5 | • Uses clear and accurate language, and inclusive and collaborative techniques to convey information to a range of personnel |
| Numeracy | 2.2, 2.5, 3.3 | • Uses mathematical equations to calculate and compare numerical test data to determine required actions |


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| | | |
|---|---|---|
| Interact with others | 1.4, 1.5 | • Identifies and uses appropriate conventions and protocols when communicating with colleagues and others |
| Get the work done | 1.1-1.5, 2.1-2.5, 3.1-3.3 | • Accepts responsibility for planning, prioritising and sequencing complex tasks and workload<br>• Applies systematic and analytical decision making processes for complex and non-routine situations<br>• Uses digital technologies to manage ICT operations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS513 Develop detailed test plans | ICASAS513A Develop detailed test plans | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS513 Develop detailed test plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- interpret software specifications
- develop a comprehensive test plan that documents:
  - test conditions or cases to be applied
  - data to be processed
  - automated testing coverage
  - expected results
  - activities, dependencies and effort required to conduct the system test.

Note: Evidence must be provided for at least TWO systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe key features of at least three different operating systems, with detailed knowledge of operating systems relevant to project requirements
- compare and contrast key features of automated test tools, with detailed knowledge of features and processes of tools relevant to the project
- discuss organisational requirements, including a testing schedule
- analyse system or application being tested
- describe quality benchmarks appropriate for testing
- describe testing techniques and process relevant to the project.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- system engineering management plan
- test and evaluation program plan
- system or application suitable for testing plus its associated documentation
- organisational plans and documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS514 Perform integration tests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure that the components of the system operate together to the expected standard.

It applies to senior development staff who are responsible for ensuring that sub-systems function correctly when combined.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for test | 1.1 Prepare test environment<br>1.2 Prepare test scripts (online test) or test run (batch test) for running<br>1.3 Review expected results against test and acceptance criteria<br>1.4 Confirm pre-existing modules and compile modification logs<br>1.5 Perform static tests of each point of integration and verify correctness of arguments, positional parameters and return values |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | in each integration suite<br>1.6 Review results of earlier component testing and ensure critical issues are identified and considered |
| 2. Conduct test | 2.1 Select appropriate test tools<br>2.2 Run test scripts and document results against software life cycle model<br>2.3 Ensure that memory leakage, global name-space pollution and static variables are specifically addressed for each integration unit in line with test and acceptance criteria<br>2.4 Follow and adopt integration standards where appropriate in line with quality benchmarks<br>2.5 Compare test results to requirements on completion of each integration component |
| 3. Analyse and classify results | 3.1 Summarise and classify test results and highlight areas of concern<br>3.2 Compare test results against requirements and design specification, and prepare report<br>3.3 Notify operations of completion of testing where appropriate<br>3.4 Ensure attendees' details and comments are logged and signatures gained<br>3.5 Schedule and conduct a feedback meeting to discuss report and possible next actions with stakeholders if necessary<br>3.6 Ensure test reporting complies with documentation and reporting standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.6, 2.5, 3.2 | • Analyses and evaluates textual and numerical information from a range of documentation to determine required action |
| Writing | 2.2, 3.1-3.4, 3.6 | • Accurately records information and system data using required format, terminology and conventions specific |


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| | | |
|---|---|---|
| | | to requirements<br>• Prepares reports using concise language and correct spelling and grammar to convey explicit information, requirements and recommendations |
| Oral Communication | 3.3-3.5 | • Uses clear and accurate language and inclusive and collaborative techniques to convey and obtain information from a range of personnel |
| Numeracy | 1.3, 1.4, 2.5, 3.1 | • Uses mathematical equations to calculate, compare and evaluate numerical test data to determine required actions |
| Interact with others | 3.3-3.5 | • Identifies and uses appropriate conventions and protocols when communicating with colleagues and stakeholders |
| Get the work done | 1.1-1.6, 2.1-2.5, 3.1-3.6 | • Develops plans to manage relatively complex routine and non-routine tasks with an awareness of how they might contribute to broader strategy and goals<br>• Uses problem solving techniques in analysing required outcomes to perform integration tests<br>• Uses digital technologies to manage information and communications technology (ICT) operations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS514 Perform integration tests | ICASAS514A Perform integration tests | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS514 Perform integration tests

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare the test environment
- conduct tests using appropriate test tools and integration standards and quality benchmarks
- perform integration requirements for the units
- determine whether the units operate according to specifications
- analyse and classify results
- prepare reports that comply with documentation and reporting standards.

Note: Evidence must be provided on at least TWO systems or occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the key features of at least two programming languages, with detailed knowledge of programming languages required by current system/project
- compare and contrast automated test tools, with detailed knowledge of features and processes of tools used for current system/project
- identify input and output requirements
- discuss organisational practice, standards and benchmarks relating to integration testing
- analyse and describe the system or application being tested
- describe key features and processes of testing techniques and tools
- analyse underlying test data.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- acceptance criteria
- test plan
- integration standards
- requirements and design documents used in test analysis
- system or application suitable for testing.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS515 Manage the testing process

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to effectively manage and administer the end-to-end testing process, including test definition, execution and reporting.

It applies to experienced individuals who work autonomously in performing or organising others to complete complex technical operations.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop test schedule | 1.1 Determine testing requirements and objectives<br>1.2 Review test plan, where available<br>1.3 Develop testing timeline and allocate resources<br>1.4 Document test objectives and schedule according to test procedures and distribute to appropriate person<br>1.5 Obtain feedback and incorporate relevant changes |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Complete test procedures | 2.1 Copy necessary code into the testing environment<br>2.2 Allocate and manage personnel carrying out the testing process<br>2.3 Administer alterations or changes to the code<br>2.4 Integrate code into production environment |
| 3. Review the completeness and accuracy of the system | 3.1 Administer full system test to ensure suitability of the system<br>3.2 Document outcomes of system test for use in subsequent development phases<br>3.3 Evaluate results of system test to determine acceptability of system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Compares and evaluates textual information and numerical data/specifications from a range of documentation to inform testing requirements |
| Writing | 1.3-1.5, 2.3, 3.2 | • Uses technically specific language and a range of writing styles to articulate requirements<br>• Uses appropriate formats and structures to present information logically for different audiences and revises documents based on feedback and outcomes |
| Oral Communication | 1.5, 2.2 | • Explains technical requirements and plans to relevant personnel, using clear and precise language and listening and questioning skills to confirm understanding |
| Interact with others | 1.4, 1.5, 2.2 | • Identifies and uses appropriate conventions and protocols when communicating with colleagues and others |
| Get the work done | 1.1-1.5, 2.1-2.4, 3.1-3.3 | • Develops plans to manage relatively complex routine and non-routine tasks with an awareness of how they might contribute to broader strategy and goals<br>• Uses problem solving techniques to analyse required outcomes in order to manage the testing process<br>• Uses digital technologies to manage operations |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS515 Manage the testing process | ICASAS515A Manage the testing process | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS515 Manage the testing process

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a test schedule
- manage the testing procedure and process
- review the system based on test outcomes to determine acceptability.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast testing techniques and automated test tools, explaining the key features and processes of each
- describe the key features of organisational procedures relating to the testing process
- explain system requirements describing key requirements and features
- analyse the system or application being tested.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- human resources
- requirements and design documentation
- test plan


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- test hardware and environments (testing to be carried out on the same platform as the completed system, with scheduled testing to be on the production platform and the production environment required as part of test preparation)
- system or application suitable for testing.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS516 Perform stress and load tests on integrated platforms

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan and perform tests to ensure the ability of a system to cope with expected high levels of data volume.

It applies to experienced individuals who provide specialised and technical knowledge in completing complex technical operations to ensure that the proposed system can handle anticipated loads.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Create test plan | 1.1 Determine scope, objectives and specific tests to place load on the system, including expected results and performance impact<br>1.2 Determine and document standards for acceptance and compliance with client<br>1.3 Determine and document clear responsibilities and contact points with third party suppliers for support<br>1.4 Identify testing resources and tools from a range of available |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | sources<br>1.5 Identify and record base-system loads or level of activity against which the test will be measured<br>1.6 Identify processes or steps in test, including automated testing<br>1.7 Assemble test plan documentation and distribute to appropriate person |
| 2. Undertake test | 2.1 Implement test plan according to test plan sequencing<br>2.2 Confirm that each technology component operates correctly within integrated platform<br>2.3 Confirm that integrated platform operates to project and industry standards<br>2.4 Undertake documentation of testing outcomes to meet project standards<br>2.5 Detect faults |
| 3. Diagnose and resolve faults | 3.1 Identify and document faults according to project plan<br>3.2 Diagnose faults and take corrective action<br>3.3 Manage problem resolution processes according to project procedures<br>3.4 Enforce compliance standards with third party suppliers as required |
| 4. Update documentation | 4.1 Update appropriate project and system documentation to record and present test findings to development staff for their attention, if test is unsuccessful |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4 | • Interprets and analyses a range of textual information and numeric data from a range of technical sources to determine necessary actions |
| Writing | 1.2-1.5, 1.7, 2.4, 3.1, | • Develops technical and procedural documentation using clear and precise language and numerical data to |


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| | | |
|---|---|---|
| | 3.5, 4.1 | convey test outcomes, requirements and recommendations |
| Oral Communication | 1.3, 4.1 | • Uses clear and precise language to convey and present complex technical information to a range of personnel<br>• Uses questioning and listening techniques to confirm understanding, gain consensus on concepts and clarify responsibilities |
| Numeracy | 1.1, 1.5, 2.2, 4.1 | • Uses mathematical equations to calculate numerical data and compare test outcomes |
| Interact with others | 1.3, 1.7, 3.4, 4.1 | • Identifies and uses appropriate conventions and protocols when communicating with colleagues and others |
| Get the work done | 1.1-1.6, 2.1-2.5, 3.1-3.4 | • Develops plans to manage relatively complex routine and non-routine tasks with an awareness of how they might contribute to broader strategy and goals<br>• Uses problem solving techniques to analyse required outcomes to perform stress and load tests<br>• Uses digital technologies to manage information and communications technology operations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS516 Perform stress and load tests on integrated platforms | ICASAS516A Perform stress and load tests on integrated platforms | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS516 Perform stress and load tests on integrated platforms

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create a test plan and undertake a test that includes analysis of the system's ability to cope with expected high levels of data volume within predetermined performance standards
- identify problems and fault-resolution strategies that may occur during stress testing
- check that the system operates in the manner expected under expected conditions
- check that supporting material, including procedures and forms, is accurate and suitable for the purpose intended
- determine that stated conditions reflect the upper limits expected by client
- ensure there are no unacceptable reductions in service
- ensure individual elements and the overall system provide the desired result or functionality
- complete and update documentation accurately.

Note: Evidence must be provide on at least TWO occasions or systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast the key features and processes of automated test tools
- analyse organisational requirements relating to stress and load testing
- evaluate program design and performance characteristics
- describe system or application requirements and performance
- describe key features and processes of testing techniques.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- business requirements
- project documentation, including templates, standards, specifications and client user and technical manuals
- business rules and expected loads
- base tools
- technical components of system, including software, hardware and network
- staffing resources, including development, operations and client user representatives
- system or application suitable for testing.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS517 Use network tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use tools to assist in managing a network effectively.

It applies to individuals who apply technical and specialised knowledge to monitor security and resolve issues for the network.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Use command line tools | 1.1 Analyse command-line environment<br>1.2 Differentiate command-line and graphical user interface (GUI) systems<br>1.3 Identify command-line tools<br>1.4 Apply command-line tools in GUI environment |
| 2. Use hardware tools | 2.1 Identify appropriate hardware tools and their function<br>2.2 Review work health and safety (WHS) requirements for tool |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | use<br>2.3 Manage network using hardware tools<br>2.4 Analyse test results |
| 3. Use software tools | 3.1 Identify appropriate software tools for network security<br>3.2 Determine areas of vulnerability<br>3.3 Classify function of each tool<br>3.4 Manage network using software tools<br>3.5 Analyse test results |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.2, 3.1 | • Identifies and interprets textual information and numerical data from a range of sources to determine necessary actions |
| Writing | 1.3 | • Records textual and numerical data in format specific to requirements |
| Numeracy | 3.5 | • Uses mathematical equations to calculate numerical data and compare test outcomes |
| Get the work done | 1.1-1.3, 2.1, 2.3, 2.4, 3.1-3.5 | • Accepts responsibility for planning, prioritising and sequencing complex tasks and workload<br>• Uses problem solving techniques to analyse required outcomes and manage the network<br>• Uses digital technologies to manage network operations |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSAS517 Use network tools | ICASAS517A Use network tools | Updated to meet Standards for Training Packages.<br><br>Minor edits to the performance criteria for clarity. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS517 Use network tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- to manage a network effectively
- identify and use appropriate hardware and software tools:
- monitor network performance
- identify network threats
- isolate security breaches.

Note: Evidence must be provided on at least TWO networks or occasions.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe available network tools
- explain processes and techniques related to using network tools
- analyse key features of the range of attacks that affect network security
- discuss key problems and challenges relating to network security.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- hardware and software tools
- security diagnostic software
- maintenance procedures
- network system.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS518 Install and upgrade operating systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to maintain, install new and upgrade existing operating systems (OS) in a medium to large organisation.

It applies to individuals who apply technical and specialised knowledge to undertake complex support operations.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine organisational help desk procedures | 1.1 Review organisation’s technical support procedures<br>1.2 Interrogate help desk system<br>1.3 Liaise with client |
| 2. Install or upgrade a desktop OS | 2.1 Install an OS<br>2.2 Upgrade an existing OS<br>2.3 Research and implement automated OS installation techniques |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and procedures<br>2.4 Migrate files |
| 3. Manage and troubleshoot resource access | 3.1 Configure local resources access<br>3.2 Configure sharing of local resources<br>3.3 Assign access rights to shared resources |
| 4. Configure and troubleshoot hardware devices and drivers | 4.1 Determine and resolve problems with hardware resources<br>4.2 Research and install appropriate device drivers<br>4.3 Configure hardware resources<br>4.4 Configure device drivers |
| 5. Configure and troubleshoot the desktop and user environments | 5.1 Construct profiles for users<br>5.2 Organise shortcuts<br>5.3 Arrange screen management |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.3, 3.1-3.3, 4.2 | • Interprets and analyses a range of textual information and numerical data from a range of technical sources to determine necessary actions |
| Writing | 1.3 | • Uses clear and precise information and numerical data in appropriate formats to convey information to clients/users |
| Oral Communication | 1.3 | • Uses clear and accurate language to convey technical information to clients/users |
| Numeracy | 1.1, 2.3, 4.2 | • Interprets and applies numerical data in source materials relevant to the activity |
| Interact with others | 1.3 | • Identifies and uses appropriate conventions and protocols when communicating with clients |
| Get the work | 1.2, 2.1-2.4, 3.1-3.3, | • Accepts responsibility for planning, prioritising and sequencing complex tasks and workload |


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| | | |
|---|---|---|
| done | 4.1-4.4, 5.1-5.3 | • Uses problem solving techniques to analyse required outcomes to manage client operating systems<br>• Uses digital technologies to manage information and communications technology (ICT) operations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS518 Install and upgrade operating systems | ICASAS518A Install and upgrade operating systems | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS518 Install and upgrade operating systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine organisation operating systems (OS) requirements
- install or upgrade OS
- customise OS to user requirements
- manage and configure hardware devices
- manage and configure desktop.

Note: Evidence must be provided for at least TWO operating systems.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain procedures and techniques involved in the installation and upgrade of OS
- explain procedures and principals involved in unattended OS installation
- describe OS configuration issues that may arise with hardware and desktop environments.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- stand-alone or networked personal computers
- appropriate OS installation compact disk or recovery boot disks
- drivers for connected devices


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- helpdesk system
- OS service packs.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSAS601 Implement change management processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply techniques that facilitate the planning, implementation and monitoring of information and communications technology (ICT) change.

It applies to experienced individuals who provide specialised technical advice, guidance and leadership in a range of areas requiring change-management in ICT systems.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

## Unit Sector

Systems administration and support

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan ICT system changes | 1.1 Research and develop change procedures and conventions<br>1.2 Develop ICT change management plan<br>1.3 Identify key personnel responsible for change management policy and procedures<br>1.4 Train staff and management in change management procedures and policies |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Evaluate current ICT system to determine changing user or business patterns<br>1.6 Identify key personnel responsible for authorising and implementing change management plan |
| 2. Identify technology system change needs | 2.1 Determine current ICT benchmarks<br>2.2 Compare identified needs against performance benchmarks to identify possible changes<br>2.3 Assess proposed changes to determine impact<br>2.4 Notify key personnel of necessary change |
| 3. Implement change | 3.1 Plan change schedule<br>3.2 Prioritise changes and allocate resources<br>3.3 Implement change management plan and procedures<br>3.4 Involve stakeholders in the implementation process<br>3.5 Capture new performance benchmarks to measure changes<br>3.6 Ensure appropriate liaison methods are used<br>3.7 Identify training requirements<br>3.8 Notify stakeholders of change |
| 4. Monitor and review implementation | 4.1 Measure change performance against new benchmarks<br>4.2 Submit performance results to stakeholders<br>4.3 Obtain sign-off on changes<br>4.4 Provide appropriate documentation and reporting |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.2 | • Interprets and analyses a range of textual information and numerical data from a range of technical sources to determine necessary actions |
| Writing | 1.1, 1.2, 2.4, 3.8, | • Uses clear and accurate language and documentation formats appropriate to different audiences/purposes to |


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| | | |
|---|---|---|
| | 4.2, 4.4 | convey technical and non-technical information |
| Oral Communication | 1.4, 2.4, 3.4, 3.8 | • Uses inclusive and collaborative techniques to share, promote and convey information about new systems and changes to a range of personnel |
| Numeracy | 1.5, 2.2, 3.1, 3.5, 4.1, 4.4 | • Uses mathematical equations to calculate and compare numerical data against benchmarks and to plan and organise schedules |
| Navigate the world of work | 3.3, 3.6, 4.3 | • Takes a lead role in the development and facilitation of change management in an ICT environment |
| Interact with others | 1.4, 2.4, 3.4, 3.6, 3.8, 4.2, 4.3 | • Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships |
| Get the work done | 1.2, 1.3, 1.5, 1.6, 2.1-2.3, 3.1-3.3, 3.5, 3.7, 4.1, 4.4 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Addresses complex problems involving multiple variables, using formal analytical, lateral thinking techniques, experience and knowledge<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSAS601 Implement change management processes | ICASAS601A Implement change management processes | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSAS601 Implement change management processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and plan information and communications technology (ICT) system changes
- implement, monitor and review ICT system changes, including:
  - applying guidelines and policies to the change management process
  - maintaining appropriate version control
  - maintaining compliance with existing accessibility and other policies.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss key change management principles
- compare and contrast key functions and features of current information technology systems
- describe internet and internetworking architecture
- explain principles and structure of performance benchmarking
- analyse server access security procedures and general security issues relating to a particular operating system
- discuss methods of communicating change to stakeholders.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the systems administration and support field of work, and include access to:


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- special purpose tools, equipment and materials
- industry software packages
- international standards
- operational data from an organisation
- needs analysis data
- organisational planning guidelines
- version control guidelines.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSMB401 Set up and operate a contractor business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to own, operate and manage a small scale contractor business with employees that install telecommunications services.

It applies to individuals who operate their own contracting business delivering and installing telecommunications services to major service providers.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – small and micro business

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Set up business operation | 1.1 Develop business plan for small business operation according to business planning guidelines<br>1.2 Follow statutory and legal requirements to register business<br>1.3 Mitigate liabilities by obtaining adequate business insurance<br>1.4 Provide and maintain vehicle through purchase, lease or hire purchase, including managing fringe benefits tax (FBT) liabilities |


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| | |
|---|---|
| | according to business plan |
| 2. Provide client service | 2.1 Develop and maintain client base to support business plan<br>2.2 Analyse and determine client expectations in relation to industry standards<br>2.3 Provide client service that meets client expectations according to enterprise standards<br>2.4 Monitor and evaluate performance on installations completed against industry standards |
| 3. Perform small business financial management tasks | 3.1 Record income and expenditure using bookkeeping tools and software according to normal accounting standards<br>3.2 Construct small business financial balance sheet using banking records or supply information to accountant according to normal accounting standards<br>3.3 Calculate small business taxation and superannuation requirements or supply information to accountant according to normal accounting standards<br>3.4 Complete a business activity statement (BAS) or supply data to accountant according to normal accounting standards |
| 4. Cost and quote installation | 4.1 Establish extent of work to be completed through professional and personable discussions with client<br>4.2 Complete job specification for quote with cost estimates of time required to complete work<br>4.3 Estimate and include cost of materials using supplier quoted prices<br>4.4 Determine and include margin for profit and ongoing costs for installation according to business plan<br>4.5 Check finalised quote for accuracy<br>4.6 Submit quote to client within agreed timeframe |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.4, 2.2, 2.4, | • Evaluates and integrates facts and ideas to construct meaning from a prescribed and limited |


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| | | |
|---|---|---|
| | 3.4, 4.3, 4.5 | range of text types, including relevant regulatory, taxation and insurance information |
| Writing | 1.1, 2.1, 2.3, 2.4, 3.4, 4.2, 4.6 | • Conveys intended meaning on familiar topics for a limited range of purposes and audiences |
| Oral Communication | 2.3, 2.4, 4.1 | • Selects and uses appropriate strategies to establish and maintain spoken communication in familiar and some unfamiliar contexts, particularly in relation to clients, employees and government officers |
| Numeracy | 1.1, 1.3, 1.4, 2.2, 2.4, 3.1-3.4, 4.1-4.6 | • Selects from and uses a variety of mathematical and problem solving strategies in a range of familiar and some less familiar contexts, including preparation of quotes and calculation of profit margins<br>• Extracts and evaluates the mathematical information embedded in a range of tasks and texts, including interpretation of financial information |
| Navigate the world of work | 1.2, 2.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to business registration<br>• Recognises and follows protocols in relation to enterprise standards and meets client expectations associated with role |
| Get the work done | 1.1, 1.3, 1.4, 2.1-2.4, 3.1, 3.2, 4.1 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to develop a business plan<br>• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Makes a range of critical and non-critical decisions in relation to mitigating liabilities and providing client service, taking a range of constraints into account<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options when developing client solutions<br>• Uses a broad range of features within bookkeeping tools and applications to improve personal productivity, optimising software functions for specific purposes |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSMB401 Set up and operate a contractor business | ICTSMB4160A Set up and operate a contractor business | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSMB401 Set up and operate a contractor business

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- produce a business plan and set up a business
- define and meet client needs
- perform simple financial management tasks including maintaining simple financial records, and completing business activity statement (BAS), fringe benefits tax (FBT) and insurance documentation
- quote for installation jobs that cover all aspects of costing.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- specify business registration and licensing requirements
- identify and describe Commonwealth, state, territory and local government legislative requirements relating to business operations including:
  - anti-discrimination
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - work health and safety (WHS)
  - taxation requirements
- analyse costs associated with running a business
- identify the current tax rates
- identify relevant industry codes of practice and evaluate their impact on the business
- identify relevant industry standards in relation to:


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  - materials and labour costs
  - rates of pay
- identify common business liabilities
- evaluate several sources of advice and specialist services
- identify sources of information about regulatory, taxation and insurance requirements and issues.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – small and micro business field of work and include access to:

- Australian Taxation Office guides
- industry standards labour rates
- general office bookkeeping procedures
- client service guides
- material suppliers
- financial management record keeping software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSMB402 Operate a contractor business with employees

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes skills and knowledge required to operate a contracting business in a competitive installation environment. This includes recruiting and managing employees as well as promoting the business and maintaining business compliance.

It applies to individuals who operate or are establishing an installation business employing support staff or installers. It may also apply to a business that uses subcontractors.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – small and micro business

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Recruit employees | 1.1 Define and document employee roles<br>1.2 Locate and tap sources of employees<br>1.3 Evaluate and select candidates for employment based on documented employee roles |


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| | |
|---|---|
| | 1.4 Provide induction to employees |
| 2. Manage employees | 2.1 Assign work to employees in line with employee roles<br>2.2 Develop strategy for retention of employees with rewards and incentives<br>2.3 Apply payroll operation<br>2.4 Maintain and manage employee on-costs using manual or computer based system<br>2.5 Monitor and evaluate employee performance against business policies and standards |
| 3. Promote the business | 3.1 Identify growth opportunities for the business<br>3.2 Design and develop advertising material to stimulate growth of the business, including evaluating process for establishing website<br>3.3 Research availability of network to promote the business |
| 4. Maintain compliance | 4.1 Research and identify compliance requirements for the business<br>4.2 Develop and implement procedures to ensure compliance<br>4.3 Implement system to monitor compliance<br>4.4 Implement actions to improve compliance performance |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 1.3, 2.1, 2.5, 3.1-3.3, 4.1 | • Evaluates and integrates facts and ideas to construct meaning from a range of text types |
| Writing | 1.1, 1.4, 2.2, 2.3, 2.5, 3.2, 3.3, 4.1, 4.2 | • Communicates relationships between ideas and information in a style appropriate to the audience and purpose including business plans, advertising materials, job descriptions and business procedures |
| Oral Communication | 1.2-1.4, 2.1, 2.5, 4.2-4.4 | • Listens to others carefully and critically and demonstrates flexibility in spoken texts by choosing appropriate structures and strategies in a range of contexts such as engagement with clients, employees and contractors |


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| | | |
|---|---|---|
| Numeracy | 2.3, 2.4 | • Selects from and uses a variety of mathematical and problem solving strategies in a range of familiar and some less familiar contexts, including checking financial information |
| Get the work done | 1.4, 2,1, 2.5, 3.1, 3.2, 4.2-4.4 | • Uses a formal decision making process when selecting staff and monitoring their performance, setting or clarifying goals, gathering information, and identifying and evaluating several choices against a limited set of criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options in relation to identifying growth opportunities<br>• Understands and explicitly applies some basic principles of analytical and lateral thinking when developing promotional material and developing and implementing a compliance system<br>• Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables including the outcomes of previous decisions<br>• Applies systematic and analytical decision making processes for complex and non-routine situations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSMB402 Operate a contractor business with employees | ICTSMB4161A Operate a contractor business with employees | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSMB402 Operate a contractor business with employees

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- recruit employees and document roles
- maintain payroll management records
- allocate work and supervise employees
- identify business growth opportunities
- develop promotional materials
- identify business compliance requirements
- develop compliance processes
- monitor compliance

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- interpret Commonwealth, state, territory and local government legislative requirements relating to contract business operation, including those relating to:
  - anti-discrimination
  - the environment
  - equal employment opportunity
  - industrial relations
  - work health and safety (WHS)
- outline and evaluate the common methods of marketing relevant to a contractor business
- identify and interpret compliance requirements within the limits of an installation service business
- identify sources of advice and specialist services.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – small and micro business field of work and include access to:

- resources and references, including Australian Taxation Office guides, human resource texts, recruitment guides and compliance legislation codes and practices
- performance management tools
- financial management record-keeping software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS401 Install and test renewable energy system for ICT networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install a renewable energy system and integrate it into an information and communications technology (ICT) network.

It applies to individuals in the ICT industry who operate with a degree of autonomy, but who may also supervise the work of others when necessary.

The specialised nature of the role focuses on meeting sustainability targets using renewable energy solutions and resulting in more economical systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to install renewable energy system | 1.1 Prepare for work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site according to required procedure |


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| | |
|---|---|
| | 1.3 Assess extent of system implementation using feasibility report and organisational guidelines<br>1.4 Produce report to meet client and organisational requirements<br>1.5 Liaise with appropriate person to obtain approval for plans with recommendations<br>1.6 Determine and source renewable energy components according to agreed plan |
| 2. Install and test renewable energy system | 2.1 Install and configure components according to work health and safety (WHS) and environmental requirements, plan, and manufacturer's and organisational requirements<br>2.2 Identify and resolve problems<br>2.3 Integrate renewable system into network<br>2.4 Test and enhance system performance to meet organisational requirements |
| 3. Complete documentation and clean up worksite | 3.1 Produce evaluation report on actual cost and benefits of implementing renewable energy system to organisation<br>3.2 Provide support manual for client<br>3.3 Record all test results and records for client<br>3.4 Notify client and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 1.6, 2.1, 2.4 | • Identifies, analyses and evaluates complex text to determine legislative, regulatory, technical and business requirements, and confirm network requirements |
| Writing | 1.4, 1.5, 3.2-3.4 | • Prepares reports, design solutions and recommendations that convey an understanding of outcomes and alternatives, and uses terminology appropriate to present to relevant personnel |
| Oral Communication | 1.5, 3.4 | • Articulates clearly using specific language suitable for technical, operational and business audiences to convey requirements<br>• Uses listening and questioning techniques to |


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| | | |
|---|---|---|
| | | confirm understanding |
| Numeracy | 3.1 | • Analyses numerical information to assess cost and benefits of renewable energy options |
| Navigate the world of work | 1.1-1.4, 2.1, 2.4 | • Recognises and responds to both explicit and implicit organisational procedures and protocols, and to legislative and regulatory requirements |
| Interact with others | 3.2, 3.4 | • Selects appropriate communication protocols in a range of work contexts |
| Get the work done | 1.1-1.3, 1.6, 2.1-2.4 | • Develops plans for complex activities with strategic implications<br>• Systematically gathers and analyses all relevant information and evaluates options to make informed decisions<br>• Uses a range of digitally based technology and applications to access and filter data, and extract, organise, integrate and share relevant information in effective ways<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS401 Install and test renewable energy system for ICT networks | ICTSUS4183A Install and test renewable energy system for ICT networks | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS401 Install and test renewable energy system for ICT networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine and meet client requirements for installation of a renewable energy system
- plan and connect hardware components according to vendor and technical specifications
- follow all work health and safety (WHS) requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe systems diagnostic features
- explain business processes
- identify client business domain, business function and organisation
- outline compatibility issues and resolution procedures
- discuss the configuration of internet protocol (IP) networks
- identify current industry accepted hardware products and renewable energy system products
- outline the essential components of client and business liaison
- explain how to document technical specifications
- describe the linkage between processes
- describe vendor specifications and requirements for component installation
- discuss the following technologies:
  - alternate energy, such as solar, wind and chemical
  - areas of the hardware relevant to configuration and testing
  - installation procedures


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- renewable energy system relevant to configuration and testing
- renewable energy system functionality
- set up and configuration procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- a site on which renewable energy solutions can be implemented
- renewable energy systems currently used in industry
- relevant documentation, feasibility studies, equipment manuals and other site related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS402 Install and test power saving hardware

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install and test power saving components in servers, motherboards and other networking equipment.

It applies to individuals in the information and communications technology (ICT) industry who operate with a degree of autonomy, but who may also supervise the work of others when necessary.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to install and test power saving hardware | 1.1 Arrange access to site according to required procedure<br>1.2 Assess extent of system implementation using feasibility report and organisational guidelines<br>1.3 Produce report to meet client and organisational requirements |


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| | |
|---|---|
| | 1.4 Liaise with appropriate person to obtain approval for plans with recommendations<br>1.5 Determine and source power saving hardware components according to agreed plan |
| 2. Install, test and evaluate power saving hardware | 2.1 Install and configure components according to work health and safety (WHS) and environmental requirements, plan, and manufacturer's and industry standards<br>2.2 Resolve identified problems<br>2.3 Test and enhance system performance to meet organisational requirements |
| 3. Complete documentation and clean up worksite | 3.1 Produce evaluation report on actual cost and benefits of implementing power saving hardware in organisation<br>3.2 Provide support manual for client<br>3.3 Record all test results and records for client<br>3.4 Restore any changes made to worksite to client's satisfaction and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 1.5, 2.1, 2.3 | • Identifies, analyses and evaluates complex text to determine legislative, regulatory, technical and business requirements, and to confirm requirements |
| Writing | 1.3, 1.4, 3.1-3.3 | • Prepares reports, design solutions and recommendations that convey an understanding of outcomes and alternatives, and uses terminology appropriate to present to relevant personnel |
| Oral Communication | 1.4 | • Articulates clearly using specific language suitable for technical, operational and business audiences to convey requirements<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 3.1 | • Analyses numerical information to assess cost |


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| | | |
|---|---|---|
| | | and benefits of power saving hardware |
| Navigate the world of work | 1.1, 1.2, 2.1, 2.3 | • Recognises and responds to both explicit and implicit organisational procedures and protocols, and legislative and regulatory requirements |
| Interact with others | 3.4 | • Selects appropriate communication protocols in a range of work contexts |
| Get the work done | 1.1, 1.5, 2.1-2.3 | • Develops plans for complex activities with strategic implications<br>• Systematically gathers and analyses all relevant information and evaluates options to make informed decisions<br>• Uses a range of digitally based technology and applications to access and filter data, and extract, organise, integrate and share relevant information in effective ways<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS402 Install and test power saving hardware | ICTSUS4184A Install and test power saving hardware | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS402 Install and test power saving hardware

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine and meet client requirements for installation and testing of power saving hardware
- plan and connect the hardware components according to vendor and technical specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe systems diagnostic features
- outline business processes
- summarise client business domain, business function and organisation
- discuss compatibility issues and resolution procedures
- describe the process of configuration of internet protocol (IP) networks
- identify current industry accepted hardware products
- describe the major components of client and business liaison
- explain how to document technical specifications
- discuss linkage between processes
- identify set up and configuration procedures
- outline technologies such as:
  - areas of the hardware relevant to configuration and testing
  - installation procedures
  - power saving hardware functionality


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- explain vendor specifications and requirements for component installation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- a site on which energy saving solutions can be implemented
- power saving hardware currently used in industry
- relevant documentation, feasibility studies, equipment manuals and other site-related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS403 Install and test power management software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to select, install and test power management software in network elements.

It applies to individuals who usually operate with a degree of autonomy, but may also supervise the work of others in the information and communications technology (ICT) industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to install power management software | 1.1 Arrange access to work site according to required procedure<br>1.2 Assess extent of software implementation using feasibility report and organisational guidelines<br>1.3 Liaise with appropriate person to obtain approval for plans<br>1.4 Determine and source new software required |


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| | |
|---|---|
| 2. Install software | 2.1 Bench test software for performance<br>2.2 Install and configure software according to work health and safety (WHS) and environmental requirements, plan, installation procedures and organisational requirements<br>2.3 Resolve identified technical problems |
| 3. Complete documentation and sign off procedures | 3.1 Document installation and configuration process according to organisational guidelines<br>3.2 Provide user documentation<br>3.3 Notify client and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 2.2, 3.1 | • Identifies, analyses and evaluates technical installation manuals and other text to determine legislative, regulatory and technical requirements |
| Writing | 1.3, 3.1-3.3 | • Prepares reports that convey an understanding of outcomes and alternatives, and uses terminology appropriate to present to relevant personnel |
| Oral Communication | 1.3, 3.3 | • Articulates clearly using specific language suitable for technical, operational and business audiences to convey requirements<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.1, 1.2, 2.2, 3.1 | • Recognises and responds to both explicit and implicit organisational procedures and protocols, and legislative and regulatory requirements |
| Interact with others | 3.3 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.1, 1.2, 1.4, 2.1-2.3 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to |


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| | | |
|---|---|---|
| | | longer term operational and strategic goals<br>• Systematically gathers and analyses all relevant information and evaluates options to make informed decisions<br>• Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and recognises strategic and operational applications<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS403 Install and test power management software | ICTSUS4185A Install and test power management software | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS403 Install and test power management software

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- clarify and meet client requirements for installation and testing of power management software
- plan and connect the software components according to vendor and technical specifications across a variety of situations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify areas of the hardware relevant to configuration and testing
- explain current industry-accepted software products, with general features and capabilities
- summarise appropriate installation procedures
- outline work health and safety (WHS) requirements in relation to work safety, environmental factors and ergonomic considerations
- explain power saving software functionality
- describe set up and configuration procedures
- discuss systems diagnostic features
- explain vendor specifications and requirements for component installation.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- a site on which energy saving solutions can be implemented
- power saving hardware currently used in industry
- relevant documentation, feasibility studies, equipment manuals and other site-related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS404 Install thin client applications for power over ethernet

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to set up energy and cost efficient installations to meet sustainability targets by remotely feeding power over ethernet (PoE).

It applies to individuals with a range of telecommunication skills who install and configure thin client applications to enable PoE on a low powered workstation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to install thin client applications | 1.1 Assess extent of applications to be implemented using feasibility report and organisational guidelines<br>1.2 Highlight issues associated with adoption of Web 2.0 applications<br>1.3 Produce implementation plan and present to client<br>1.4 Liaise with appropriate person to obtain approval for plans with any |


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| | |
|---|---|
| | recommendations<br>1.5 Notify client for site access |
| 2. Evaluate appropriate applications | 2.1 Develop criteria for Web 2.0 applications to satisfy enterprise needs<br>2.2 Test and evaluate Web 2.0 applications according to agreed criteria<br>2.3 Present findings to client with recommendations on Web 2.0 applications |
| 3. Install hardware components and applications | 3.1 Follow work health and safety (WHS) and environmental requirements according to plan and manufacturer's specifications<br>3.2 Develop implementation plans with prioritised tasks and contingency arrangements for minimum disruption to client<br>3.3 Install hardware components and thin client software needed for work according to network and organisational requirements<br>3.4 Bench test performance of applications<br>3.5 Resolve identified problems |
| 4. Complete work and document activities | 4.1 Document installation and integration process according to organisational guidelines<br>4.2 Provide user documentation<br>4.3 Notify client and obtain sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 2.2, 3.1, 3.3, 4.1 | • Identifies, analyses and evaluates technical installation manuals and other text to determine regulatory and technical requirements |
| Writing | 1.3, 1.5, 2.1, 2.3, 3.2, 4.1-4.3 | • Prepares reports and design solutions in required formats that convey an understanding of outcomes and alternatives and uses terminology appropriate to present to relevant personnel |
| Oral Communication | 1.3-1.5, 2.3, 4.3 | • Articulates clearly using specific language suitable for technical, operational and business audiences to convey requirements<br>• Uses listening and questioning techniques to |


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| | | |
|---|---|---|
| | | confirm understanding |
| Navigate the world of work | 1.1, 3.1, 3.3, 4.1 | • Recognises and responds to both explicit and implicit organisational procedures and protocols, and legislative and regulatory requirements |
| Interact with others | 2.3, 4.3 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 3.3-3.5 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Takes responsibility for own workload, negotiating some key aspects with others<br>• Systematically gathers and analyses all relevant information and evaluates options to make informed decisions<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology and when seeking to understand the potential of new technology<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS404 Install thin client applications for power over ethernet | ICTSUS4186A Install thin client applications for power over ethernet | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS404 Install thin client applications for power over ethernet

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- determine and meet client requirements for thin client applications
- install and configure components according to vendor and technical specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline why businesses use thin technologies
- explain client business domain, business function and organisation
- summarise compatibility issues and resolution procedures
- explain the configuration of internet protocol (IP) networks
- discuss the importance of client and business liaison
- explain how to document technical specifications
- summarise linkage between processes
- explain set up and configuration procedures
- discuss systems diagnostic features
- explain Web 2.0 including:
  - applications and functionality
  - areas of the Web 2.0 relevant to configuration and testing
  - current industry accepted Web 2.0 products
  - vendor specifications and requirements for Web 2.0 applications
  - Web 2.0 application procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- a site on which remote power feeding applications can be implemented
- relevant documentation, feasibility studies and equipment manuals.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS501 Implement server virtualisation for a sustainable ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install and integrate a virtual server in a network to replace multiple physical servers, reducing power requirements of individual servers and meeting sustainability targets.

It applies to individuals with a high level of specialist technical skills and knowledge in telecommunications and information and communications technology (ICT) networks using internet protocol (IP) systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to implement server virtualisation | 1.1 Assess extent of virtualisation to be implemented using feasibility report and organisational guidelines<br>1.2 Analyse existing server infrastructure use<br>1.3 Research and analyse alternative virtualisation scenarios, including |


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| | |
|---|---|
| | risk analysis and relative comparisons of each consideration<br>1.4 Provide brief report to appropriate person of proposed preferred plan and describe resources required<br>1.5 Liaise with appropriate person to obtain approval for plans with any recommendations |
| 2. Design virtual server specification | 2.1 Confirm network operating system, server applications and server design with client<br>2.2 Determine product and vendor architecture and equipment specifications<br>2.3 Determine technology and resources within business requirements and budget |
| 3. Install virtual server | 3.1 Follow work health and safety (WHS) and environmental requirements according to plan and manufacturer's specifications<br>3.2 Notify client for site access<br>3.3 Create detailed task list specifying stages and sequence of work required<br>3.4 Review hardware and software to ensure compatibility<br>3.5 Install required operating system, additional tools or third party software as specified in design<br>3.6 Patch operating system and applications to ensure maximum security and reliability |
| 4. Integrate and test virtual server | 4.1 Determine tests to ensure virtual server integration<br>4.2 Develop test plan, referring to resources and network impact<br>4.3 Run system tests according to test plan and record outcomes<br>4.4 Analyse error report and make changes as required<br>4.5 Test required changes or additions<br>4.6 Validate changes or additions against specifications |
| 5. Complete work and document activities | 5.1 Document installation and integration process according to organisational guidelines<br>5.2 Provide user documentation<br>5.3 Notify client and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 3.5, 4.3, 4.6, 5.1 | • Identifies, analyses and evaluates technical installation manuals and other text to determine regulatory and technical requirements |
| Writing | 1.4, 1.5, 2.1, 3.2, 3.3, 4.2, 4.3, 5.1-5.3 | • Prepares reports and design solutions in required formats for diverse audiences that convey an understanding of outcomes and alternatives, and uses terminology appropriate to present to relevant personnel |
| Oral Communication | 1.5, 2.1, 3.2, 5.3 | • Articulates clearly using specific language suitable for technical, operational and business audiences to convey requirements<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.3 | • Calculates equipment costs with reference to budgetary constraints |
| Navigate the world of work | 1.1, 3.1 | • Recognises and responds to both explicit and implicit organisational procedures and protocols, and legislative and regulatory requirements, with specific reference to safety |
| Interact with others | 5.3 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.1-1.3, 2.2, 2.3, 3.3-3.6, 4.1-4.6 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Takes responsibility for own workload, negotiating some key aspects with others<br>• Systematically gathers and analyses all relevant information and evaluates options to make informed decisions<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology and when seeking to understand the potential of new technology<br>• Uses analytical processes to decide on a course of |


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| | | |
|---|---|---|
| | | action, establishing criteria for deciding between options |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS501 Implement server virtualisation for a sustainable ICT system | ICTSUS5187A Implement server virtualisation for a sustainable ICT system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS501 Implement server virtualisation for a sustainable ICT system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- communicate with clients for business purposes
- determine and meet client requirements for installation and testing a virtual server
- install, integrate and test virtualisation components according to vendor and technical specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain client business domain, business function and organisation
- summarise compatibility issues and resolution procedures
- describe configuration of internet protocol (IP) networks
- identify current industry-accepted products
- describe the process of documenting technical specifications
- outline linkage between processes
- discuss systems diagnostic features
- summarise the following technologies:
  - power supply requirements and management
  - registered random access memory (RAM)
  - server design and network architecture
  - set up and configuration procedures
  - single and multiple processors
  - vendor specifications and requirements for software installation


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- virtual server functionality.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- a site and equipment on which servers can be virtualised
- server virtualisation currently used in industry
- relevant documentation, feasibility studies, equipment manuals and other site-related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS601 Integrate sustainability in ICT planning and design projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to integrate sustainability concepts and policies into information and communications technology (ICT) planning and design projects. These projects typically involve upgrades of equipment hardware and software or new installations of next generation networks (NGN) using emerging technologies.

It applies to individuals who have high level specialist technical skills and knowledge in optical communications and IT networks using internet protocol (IP) systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to integrate sustainability into planning and | 1.1 Evaluate suitable ICT projects into which sustainability can be integrated<br>1.2 Negotiate with stakeholders to establish extent to which |


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| | |
|---|---|
| design stages of ICT project | sustainability is to be integrated<br>1.3 Research and identify suitable technology solutions applicable to project<br>1.4 Gather power consumption data on ICT equipment required for energy audit based on agreed standard |
| 2. Devise strategies for incorporating sustainability into ICT project | 2.1 Determine and oversee implementation of short term technology solutions to achieve reduction of power consumption<br>2.2 Initiate and progress sustainable management principles that result in reduced environmental impact<br>2.3 Establish, regularly review and improve key performance indicators (KPI) on sustainability performance<br>2.4 Incorporate innovative planning and design rules for ICT projects that foster sustainability and environmental best practice |
| 3. Analyse energy audit data | 3.1 Identify energy usage within scope of ICT project and provide detailed report<br>3.2 Estimate potential energy savings and payback periods for recommended actions<br>3.3 Estimate carbon dioxide ($CO^2$) emissions for nominated project<br>3.4 Evaluate estimated $CO^2$ emissions with comparable benchmarks<br>3.5 Make recommendations in order of priority and give estimates of implementation costs on integration of sustainability for other ICT projects |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.4, 2.3 | • Gathers, interprets and analyses a range of complex textual information from a range of sources and identifies relevant and key information |
| Writing | 1.2, 3.1, 3.5 | • Records technical requirements and procedures for diverse audiences using precise language and specialised terminology to convey an understanding of outcomes and alternatives |


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| | | |
|---|---|---|
| Oral Communication | 1.1, 1.2 | • Clearly articulates and validates policy and strategy benefits for project requirements using specific language suitable for different audiences to convey requirements<br>• Uses listening and questioning techniques to confirm understanding<br>• Effectively negotiates contracts with suppliers |
| Numeracy | 2.3, 3.1-3.5 | • Uses complex mathematical formulae to estimate $CO^2$ emissions, analyse and confirm capacity requirements and plan budgetary and workforce needs |
| Get the work done | 1.1, 1.3, 1.4, 2.1, 2.3, 2.4, 3.1-3.3, 3.5 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Takes responsibility for own workload, negotiating some key aspects with others<br>• Systematically gathers and analyses all relevant information and evaluates options to make informed decisions<br>• Reflects on the ways in which digital systems and tools are used or could be used to achieve work goals, and recognises strategic and operational applications<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS601 Integrate sustainability in ICT planning and design projects | ICTSUS6233A Integrate sustainability in ICT planning and design projects | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS601 Integrate sustainability in ICT planning and design projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and integrate sustainability into information and communications technology (ICT) projects by devising strategies to conserve resources
- analyse energy audit data on enterprise resource consumption
- develop and monitor policies for review and improvements, benchmarking against industry best practice and attempting new approaches continuously over time.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss best practice approaches relevant to own work area
- explain environmental or sustainability legislation, regulations and codes of practice applicable to the industry and organisation
- discuss and explain work health and safety (WHS) implications for new policy
- explain how to estimate $CO^2$ emissions
- summarise ICT power consumption calculations
- discuss policy development processes and practices
- summarise power consumption audit methodology
- identify principles, practices and available tools and techniques of sustainability management relevant to the telecommunications industry
- describe quality assurance systems relevant to own organisation
- summarise systems and procedures to aid in the achievement of workplace sustainability.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- sites on which planning, design and integration of sustainability may be carried out
- relevant legislation, standards, guidelines, reports and equipment specifications and drawings
- a range of workplace documentation, personnel, information and resources including:
  - compliance obligations
  - organisational plans.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to seek business advantages by developing innovative and sustainable solutions in information and communications technology (ICT) project plans.

It applies to individuals who prepare planning, cost-benefit analysis and return on investment for the implementation of sustainable schemes at the enterprise level and who work with high-level specialist training skills and knowledge in optical telecommunications and IT networks using internet protocol (IP) systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare information for establishing a | 1.1 Evaluate proposed ICT project to determine scope and potential of sustainability integration |


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| | |
|---|---|
| business case | 1.2 Research appropriate sources of information relevant to project to prepare business case<br>1.3 Analyse and evaluate expected goals of project and relate business case to broader organisational goals<br>1.4 Identify and consult with stakeholders to plan and validate options<br>1.5 Identify and report on any assumptions and known constraints that can impact on project |
| 2. Produce business case for ICT sustainability project | 2.1 Evaluate critical success factors to determine vital strategy for project to successfully implement sustainability and gain competitive advantage<br>2.2 Prepare cost-benefit analysis and estimate overall benefit obtained by introducing or improving sustainability in project<br>2.3 Prepare estimate of costs over appropriate time period and determine potential of return on investment (RoI)<br>2.4 Evaluate and analyse alternative options to determine benefits, disadvantages, costs and risks |
| 3. Produce business case documentation | 3.1 Validate options with stakeholders and determine recommended option<br>3.2 Prepare implementation plan for recommended option for ICT project<br>3.3 Produce executive summary of proposal, including consequences of not implementing sustainability activity |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 1.3, 2.1 | • Analyses and evaluates complex textual information to determine technical solutions and to evaluate the benefits of improving or introducing sustainability |
| Writing | 1.4, 1.5, 2.2, 2.3, 3.1-3.3 | • Prepares a business case for diverse audiences using precise language and specialised terminology to convey an understanding of outcomes and alternatives<br>• Uses specific language to record technical requirements and procedures |
| Oral | 1.1, 1.4, 1.5, | • Clearly articulates and validates policy and strategy |


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| | | |
|---|---|---|
| Communication | 3.1 | benefits for project requirements using specific language suitable for different audiences to convey requirements<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.2-2.4 | • Uses mathematical formulae to analyse and confirm capacity requirements and to plan budgetary and workforce needs |
| Navigate the world of work | 1.3 | • Recognises and responds to both explicit and implicit organisational procedures and protocols |
| Get the work done | 1.1-1.3, 1.5, 2.1, 2.2, 2.4 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer term operational and strategic goals<br>• Takes responsibility for own workload, negotiating some key aspects with others<br>• Systematically gathers and analyses all relevant information and evaluates options to make informed decisions<br>• Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when seeking to understand the potential of new technology<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects | ICTSUS6234A Establish a business case for sustainability and competitive advantage in ICT projects | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS602 Establish a business case for sustainability and competitive advantage in ICT projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate a measurable improvement of a business through the implementation of a chosen strategy using benchmark indicators
- communicate effectively with stakeholders on approaches to sustainability improvements, development and implementation, and contribute to resolution of disputes among stakeholders
- use software systems for recording and filing documentation, measuring current usage, and interpreting all visual data and information
- identify improvements and benchmarks against industry best practice by continuously reviewing and improving policies over time.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise best practice approaches relevant to sustainability
- discuss environmental and sustainability legislation, regulations and codes of practice applicable to the industry and organisation
- describe equal employment opportunity, equity and diversity principles and work health and safety (WHS) implications of policy being developed
- explain policy development processes and practices
- outline principles, practices and available tools and techniques of sustainability management relevant to the information and communications technology (ICT) industry
- elucidate quality assurance systems relevant to own organisation
- discuss relevant industry competency


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- evaluate relevant organisational policies, procedures and protocols as they relate to sustainability
- summarise relevant systems and procedures to aid in the achievement of workplace sustainability
- explain how to calculate ICT power consumption
- discuss energy consumption and energy audit methodology
- summarise the environmental impacts of products, processes, systems and services.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- sites on which preparation of a business case for introducing or improving sustainability in an ICT project may be carried out
- relevant legislation, standards, guidelines, reports, and equipment specifications and drawings
- a range of workplace documentation and personnel information and resources, such as compliance obligations, organisational plans and work responsibilities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS801 Plan and manage virtualisation for ICT sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse, plan and manage options using virtualisation and managed services for organisational processes to meet sustainability targets.

It applies to individuals who have responsibility for conducting or managing information and communications technology (ICT) infrastructure projects, such as network managers, ICT infrastructure managers, network planners and designers, consultants or contractors.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Sustainability

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop organisational plan to implement ICT virtualisation | 1.1 Critically analyse current enterprise operations to determine what processes or practices can be realised using virtualisation to ensure long-term sustainability within organisational guidelines<br>1.2 Research and analyse alternative virtualisation scenarios, including risk analysis and relative comparisons of each, considering return on investment (RoI) |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Produce results of analysis, prioritising sequence of processes to be virtualised based on enterprise priorities and setting of sustainability targets for organisation |
| 2. Manage strategies for deploying virtual machines | 2.1 Critically analyse business factors that cause enterprises to migrate to virtualisation<br>2.2 Identify virtualisation inhibitors preventing organisation from deploying strategies on local virtual machines<br>2.3 Produce virtualisation management plan to capitalise on using virtual machines according to enterprise priorities |
| 3. Manage outsourced services and cloud networks | 3.1 Critically analyse ICT requirements of organisation to produce cloud architecture, using multiple cloud computing elements indicating layers of cloud client stack<br>3.2 Produce cost–benefit analysis<br>3.3 Produce analytical justifications that will determine deployment model to meet business requirements of organisation<br>3.4 Establish service level agreement (SLA) with managed services provider (MSP) or network provider to ensure responsibilities of stakeholders are specified and agreed to |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 3.1, 3.3 | • Critically analyses documentation from a variety of sources and records and consolidates information to determine requirements |
| Writing | 1.2, 1.3, 2.3, 3.3, 3.4 | • Prepares analytical reports, management plans and SLAs, and documents technical requirements and procedures for a diverse range of people in required format |
| Numeracy | 1.2, 3.2 | • Analyses and confirms capacity and interoperability requirements, calculates cost–benefit analysis and produces budget requirements and limitations |
| Navigate the world of | 1.1, 1.3, 2.3, 3.3 | • Works autonomously, making high level decisions to achieve and improve organisational goals<br>• Develops and implements strategies that ensure |


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| | | |
|---|---|---|
| work | | organisational policies, procedures and regulatory requirements are being met<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements to implement and manage change |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3, 3.4 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context, in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Makes high impact decisions in a complex and diverse environment, using input from a range of sources<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation's goals<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS801 Plan and manage virtualisation for ICT sustainability | ICASUS701A Plan and manage virtualisation for IT sustainability | Updated to meet Standards for Training Packages.<br><br>Minor edit to the competency title.<br><br>Recoded and minor changes to performance criteria to meet | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | AQF requirements. | |

# Links

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# Assessment Requirements for ICTSUS801 Plan and manage virtualisation for ICT sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop an effective plan for virtualisation and manage strategies, including managed services
- determine and meet client requirements for installation and testing of virtual server
- perform information and communications technology (ICT) power-consumption calculations
- install, integrate and test virtualisation components according to vendor and technical specifications
- produce an accurate cost-benefit analysis and virtualisation management plan for justification
- establish an effective service level agreement (SLA).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- research and specify best practice approaches relevant to sustainability
- contrast common business processes, including:
  - relevant organisational policies, procedures and protocols
  - relevant systems and procedures to aid in the achievement of workplace sustainability
- determine the client business domain, including client organisational structure and business functionality
- define cloud computing architecture
- outline compatibility issues and resolution procedures
- specify the configuration of internet protocol (IP) networks


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- critique current industry-accepted products
- research and specify energy consumption and energy audit methodologies
- outline environmental and sustainability legislation, regulations and codes of practice applicable to the industry and organisation
- explain the environmental impact of products, processes, systems and services
- explain linkage between policies and the development of processes and practices
- explain principles, practices and available tools and techniques of sustainability management relevant to the ICT industry
- describe quality assurance systems relevant to own organisation
- identify a range of relevant managed services, including software, network and support
- describe technologies and other requirements relevant to virtualisation, including:
  - cloud computing
  - power supply requirements and management
  - server design and network architecture
  - set-up and configuration procedures
  - single and multiple processors
  - vendor specifications and requirements for software installation
  - virtual server functionality
  - system diagnostics
  - using software simulation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the sustainability field of work and include access to:

- relevant documentation
- current server virtualisation
- site and equipment on which servers can be virtualised.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS802 Conduct a business case study for integrating sustainability in ICT planning and design projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish a business case to justify innovative implementation of sustainability in information and communications technology (ICT) planning and design projects, including accessing industry information and applying legislative guidelines.

It applies to individuals who may be working in a role as a project manager, planner and designer, consultant or contractor and who has responsibility for conducting or managing ICT projects to plan and conduct cost–benefit analysis and return on investment for the implementation of sustainable schemes at the enterprise level.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Sustainability

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope project for establishing business case for integrating sustainability in ICT | 1.1 Critically analyse proposed ICT project specifications to determine scope and extent of sustainability integration in design aspects |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| project | 1.2 Critically analyse and evaluate expected goals of project and relate business case to broader organisational goals<br>1.3 Research appropriate sources of information relevant to project to prepare business case for validation with stakeholders |
| 2. Plan and conduct business case for sustainable ICT project | 2.1 Evaluate critical success factors to determine vital strategy for project to implement sustainability and gain competitive advantage<br>2.2 Produce estimate of costs projected over appropriate time period and determine potential for return on investment for proposed design and implementation plan<br>2.3 Conduct cost–benefit analysis to determine financial gain of derived overall benefit obtained by integrating sustainability into project<br>2.4 Produce executive summary for stakeholders on proposal, including risk analysis if sustainability component activity is not implemented |
| 3. Devise management strategies for integrating sustainability into ICT project | 3.1 Initiate and progress sustainable management principles that result in reduced environmental impact<br>3.2 Establish, regularly review and improve key performance indicators (KPIs) on sustainability performance<br>3.3 Incorporate innovative planning and design rules for ICT projects that foster sustainability and environmental best practice<br>3.4 Produce energy usage projection using estimated carbon dioxide emissions with comparable benchmarks and provide detailed report to support long-term benefits |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 2.2, 2.3, 2.4, 3.2, 3.3 | • Generates complex written reports, business cases and executive summaries, demonstrating control over a broad range of writing styles and purposes<br>• Prepare documents requiring precise expression, language and structures suited to intended audience |


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| | | |
|---|---|---|
| Numeracy | 2.2, 2.3 | • Analyses and synthesises highly embedded mathematical information for business case, budgets, workforce requirements and related sustainability benchmarks |
| Navigate the world of work | 3.1, 3.3, 3.4 | • Works autonomously, making high level decisions to achieve and improve organisational goals<br>• Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are being met<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements to implement and manage change |
| Interact with others | 2.4 | • Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships<br>• Influences and fosters a collaborative culture, facilitating a sense of commitment and workplace cohesion<br>• Understands diversity and seeks to integrate diversity into the work context for managing change, making decisions and achieving shared outcomes |
| Get the work done | 1.1-1.3, 2.1, 2.3, 2.4, 3.1-3.4 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Identifies key factors that impact on decisions and their outcomes, drawing on experience, competing priorities and decision-making strategies where appropriate<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation's goals<br>• Uses digital technologies to manage business operations and actively investigates new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS802 Conduct a business case study for | ICASUS702A Conduct a business case study for | Updated to meet Standards for Training | Equivalent unit |


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| **Code and title**<br><br>**current version** | **Code and title**<br><br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| integrating sustainability in ICT planning and design projects | integrating sustainability in IT planning and design projects | Packages.<br><br>Minor edits to the competency title.<br><br>Recoded and minor changes to performance criteria to meet AQF requirements. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS802 Conduct a business case study for integrating sustainability in ICT planning and design projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish an effective business case to introduce or improve sustainability in an information and communications technology (ICT) project
- produce an accurate cost–benefit analysis showing overall benefit of integrating sustainability into an ICT project
- devise, implement and review management strategies showing a measurable improvement using the chosen benchmark indicators.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare best practice approaches relevant to sustainability
- research and contrast energy consumption and energy audit methodologies
- research and critically evaluate environmental and sustainability legislation, regulations and codes of practice applicable to the industry and the organisation
- evaluate the environmental impacts of products, processes, systems and services
- interpret global and national initiatives, legislation, policies and guidelines relevant to project
- research and critique the principles, practices and available tools and techniques of sustainability management relevant to the ICT industry
- explain quality assurance systems relevant to own organisation
- formulate the relevant organisational policies, procedures and protocols required to assist in achieving workplace sustainability


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- research and apply sustainability assessment tools and key performance indicators and benchmarks
- describe sustainable management principles and strategies
- critique the various software tools for ICT power consumption and CO2 emissions calculations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the sustainability field of work and include access to:

- a range of workplace documentation
- personnel associated with a relevant business
- legislation, specifications and guidelines
- a site on which preparation of a business case may be carried out.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS803 Research strategies using SAP solutions for sustainable economic and environmental outcomes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish a business case to justify the implementation of systems, applications and products (SAP) in operational strategies to achieve more sustainable business operations and environmental sustainability. It involves accessing industry information and applying legislative guidelines.

It applies to individuals who may work in a role as a business analyst, project manager, consultant, planner or designer who has responsibility for conducting or managing business operations and who plans and conducts cost–benefit analysis and return on investment for the implementation of sustainable schemes at an enterprise level.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Sustainability

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope enterprise for establishing business case for integrating SAP into | 1.1 Critically analyse current enterprise operations to determine what processes or practices can be realised using SAP to ensure long-term sustainability within organisational guidelines |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| business operations | 1.2 Research and critically analyse range of alternative SAP product and services solutions, including risk analysis and relative comparisons to prepare business case for validation with stakeholders<br>1.3 Produce preliminary results of scoping analysis with recommended priority of SAP solutions that would optimise business sustainability and deliver competitive advantage |
| 2. Plan and conduct business case for using SAP solutions | 2.1 Evaluate scoping analysis report to produce operating costs estimate projected over appropriate time period for a proposed plan, based on SAP solution for business critical operation<br>2.2 Conduct cost–benefit analysis to predict potential return on investment (RoI) on economic and environmental sustainability and business benefits derived by proposed SAP solution<br>2.3 Produce executive summary of proposal for validation with stakeholders, including risk analysis if SAP solution activity is not implemented |
| 3. Devise management strategies for implementing SAP sustainability solution in business operations | 3.1 Produce management plan to implement sustainability strategies using SAP software solution tools to improve profitability and reduce environmental impacts<br>3.2 Establish regular reviews using SAP reports to improve key performance indicators (KPIs) on sustainability performance<br>3.3 Produce energy usage analysis for proposed SAP solution using projected carbon dioxide (CO2) emissions with comparable benchmarks<br>3.4 Provide detailed feasibility report to support long-term economic and environmental benefits |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 3.2 | • Critically analyses plans and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.2, 1.3, 2.3, 3.1-3.4 | • Generates complex written reports, executive summaries, |


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| | | |
|---|---|---|
| | | business cases and other documents, demonstrating control over a broad range of writing styles and purposes<br>• Prepares documentation expressing ideas, exploring complex issues and constructed logically, succinctly and accurately |
| Numeracy | 2.1, 2.2, 3.3 | • Uses highly-developed numeracy skills to interpret complex information and to perform complex calculations for costing, return on investment and sustainability targets and benchmarks |
| Navigate the world of work | 1.1 | • Works autonomously making high level decisions to achieve and improve organisational goals<br>• Develops and implements strategies that ensure organisational policies, procedures and regulatory requirements are being met<br>• Monitors and reviews the organisation's policies, procedures and adherence to legislative requirements to implement and manage change |
| Interact with others | 1.2, 2.3, 3.2 | • Uses a variety of relevant communication tools and strategies in building and maintaining effective working relationships<br>• Influences and fosters a collaborative culture, facilitating a sense of commitment and workplace cohesion<br>• Understands diversity and seeks to integrate diversity into the work context, for managing change, making decisions and achieving shared outcomes |
| Get the work done | 1.1-1.3, 2.3, 3.2-3.4 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Gathers and analyses data and seeks feedback to improve plans and processes<br>• Explores and incubates new and innovative ideas through unconstrained analysis and critical thinking to develop and improve the organisation's goals<br>• Uses digital technologies to manage business operations and actively investigate new technologies for strategic and operational purposes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSUS803 Research strategies using SAP solutions for sustainable economic and environmental outcomes | ICASUS703A Research strategies using SAP solutions for sustainable economic and environmental outcomes | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to performance criteria to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS803 Research strategies using SAP solutions for sustainable economic and environmental outcomes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- conduct a scoping exercise and produce an analytical report
- conduct an effective cost–benefit analysis using systems applications and products (SAP) solutions to justify return on investment (RoI) on economic and environmental sustainability
- produce an accurate executive summary for stakeholder validation
- produce a thorough management plan to implement strategies using SAP software solutions
- produce an accurate energy usage analysis and feasibility report for long-term sustainability.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise and recommend best practice approaches relevant to SAP sustainability
- appraise the extensive range of SAP software solutions and tools
- research and specify energy consumption and energy audit methodologies
- review waste and recycling policies and management
- contrast strategies for procurement and supply chain management
- outline business operation and procedures
- research and specify environmental and sustainability legislation, regulations and codes of practice applicable to the industry and the organisation
- research and evaluate carbon emission global and national legislation, targets and benchmarks


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- critique environmental impacts of products, processes, systems and services
- specify the principles, practices and available tools and techniques of social, economic and environmental sustainability management
- research and summarise various strategies and benefits applicable to conducting a business sustainably, including:
  - quality assurance systems relevant to own organisation
  - relevant organisational policies, procedures and protocols
  - relevant systems and procedures to aid in the achievement of a sustainable workplace.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the sustainability field of work and include access to:

- a range of workplace documentation
- relevant personnel
- organisational plans
- relevant legislation
- equipment specifications
- sites on which preparation of a business case may be carried out.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS804 Use ICT to improve sustainability outcomes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use ICT tools and technologies to improve sustainability outcomes for a range of industries through monitoring and reporting on greenhouse gas emissions.

It applies to individuals with a high level of autonomy who are excellent communicators with telecommunications and systems skills and management abilities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Sustainability

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Design and manage a sustainability audit | 1.1 Use audit tool that reflects criteria of benchmark, nature of risks, relevant information and data types, evaluation of performance and legislative requirements<br>1.2 Define scope, objectives and benchmarks for audit in consultation with relevant stakeholders<br>1.3 Document requirements for audit resources, timing, schedule and responsibilities consistent with industry best practice and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | relevant standards<br>1.4 Ensure collection strategies are objective and systematic, and that information and data is valid and reliable<br>1.5 Report outcomes clearly and concisely, including benefits to be achieved by adoption of audit recommendations |
| 2. Monitor energy consumption and emissions | 2.1 Analyse requirements of National Greenhouse and Energy Reporting System (NGERS) and other relevant legislation and industry standards in relation to a range of industries and needs of specific organisations<br>2.2 Identify links with functional areas and environmental management systems to ensure comprehensive information and data collection<br>2.3 Determine hardware and software required for collecting, collating, analysing and reporting emissions-related information and data<br>2.4 Factor requirement for an external audit into the monitoring proposal<br>2.5 Critically evaluate energy consumption and emissions data<br>2.6 Develop improvement strategies based on review of data<br>2.7 Use industry best practice as quality benchmark |
| 3. Develop ICT solutions to improve sustainability outcomes | 3.1 Research and analyse mitigation and adaptation strategies appropriate for a range of industries<br>3.2 Benchmark and document performance expectations in consultation with relevant stakeholders<br>3.3 Develop and document technical specifications including hardware, software, networking, interface and security and hazard management requirements<br>3.4 Determine timelines, resources and costs for implementation and ongoing monitoring and maintenance<br>3.5 Analyse impact of ICT solution in relation to performance benchmarks<br>3.6 Analyse opportunities and develop recommendations to improve sustainability of enterprise products, services and processes<br>3.7 Present report for client sign-off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.2, 2.5-2.7, 3.3 | • Identifies, analyses and evaluates complex textual information to inform sustainability solutions |
| Writing | 1.2, 1.3, 1.5, 2.4, 2.6, 3.2, 3.3, 3.6, 3.7 | • Produces detailed reports and related documentation and develops recommendations using precise language and specialised terminology to convey understanding of outcomes |
| Oral Communication | 1.2, 1.5, 3.2, 3.7 | • Articulates clearly using specific language suitable to client and stakeholder audiences to convey requirements, and uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.1, 2.5, 3.4 | • Uses mathematical formulae to plan budgetary requirements and evaluate timelines for solution implementation and ongoing monitoring requirements<br>• Interprets complex energy consumption and emissions data to identify workplace improvements |
| Navigate the world of work | 1.1, 1.3, 2.1 | • Recognises and responds to both explicit and implicit organisational procedures and protocols and legislative/regulatory requirements |
| Get the work done | 1.1-1.4, 2.2, 2.3 | • Develops flexible plans for complex, high impact activities with strategic implications involving diverse stakeholders with potentially competing demands<br>• Takes responsibility for defining key aspects of own workload, balancing own needs and priorities with those of the work group<br>• Systematically gathers and analyses all relevant information and evaluates options to make high-impact and informed decisions<br>• Considers strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS804 Use ICT to improve sustainability outcomes | ICTSUS7235A Use ICT to improve sustainability outcomes | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PC's to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS804 Use ICT to improve sustainability outcomes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- audit and critically analyse patterns of energy use
- develop monitoring and reporting systems that comply with regulatory requirements
- develop a workable implementation strategy
- formulate solutions to improve sustainability outcomes
- develop benchmarks for reviewing and improving performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain auditing sustainability processes and practices
- discuss corporate social responsibility
- describe development processes and practices
- clarify hazard identification and control
- explain industry standards
- discuss the legislative framework underpinning sustainability
- summarise principles, practices and available tools and techniques of sustainability management relevant to a range of industries
- outline relevant international business and organisational standards
- discuss sustainability from a local, national and international perspective
- summarise sustainability including ecological, economic and social issues
- discuss technical performance measurements.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Sustainability industry and include access to:

- relevant reports, legislation, regulations and standards
- suitable hardware, software, resources and equipment
- internet connection with suitable bandwidth
- relevant documentation including manufacturers' technical specifications.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS805 Manage improvements in ICT sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to improve energy conservation and energy efficiency in information and communications technology (ICT) operations and to encourage changing user behaviour.

It applies to individuals who work in a managerial capacity with a high degree of autonomy and high level of responsibility with excellent communication skills, high level technical management abilities and a broad knowledge of the design of system networks. In this role, individuals research and analyse network management databases, plan changes, diagnose and fix network problems, and report outcomes.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Critically analyse organisation's | 1.1 Audit and assess level and type of use across range of ICT devices, infrastructure and software<br>1.2 Audit and establish baselines of ICT energy consumption and other |


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|---|---|
| ICT assets energy footprint | elements contributing to organisation's carbon footprint<br>1.3 Assess ICT usage in relation to its contribution to organisation's business goals and priorities<br>1.4 Determine critical issues for organisation relevant to ICT usage and carbon footprint<br>1.5 Assess current ICT usage in relation to sustainable asset management<br>1.6 Apply industry best practice where appropriate |
| 2. Develop ICT sustainability strategies and policy | 2.1 Include goals for reduction of sustainability impacts and equipment life cycle management approaches in organisational policy<br>2.2 Check policy scope is consistent with industry standards and benchmarks, and amend where necessary<br>2.3 Ensure policy reflects organisation's commitment to sustainability as integral part of business planning and business opportunity<br>2.4 Consult with stakeholders as integral part of policy development, implementation and review processes<br>2.5 Recommend policy options based on effectiveness, timeframes and cost<br>2.6 Develop and produce strategies for implementation, monitoring, review and audit as part of policy documentation |
| 3. Formulate technical and behavioural solutions to improve ICT sustainability | 3.1 Determine and document hardware, software, network and interface requirements of solutions<br>3.2 Develop strategies to improve sustainability outcomes, including energy efficiency and alternative energy sources<br>3.3 Develop guidelines for improving sustainability through asset management<br>3.4 Document requirements, resource allocations, training needs, hazard controls and implementation timelines for selected strategies, and obtain sign off from relevant stakeholders |
| 4. Monitor and evaluate sustainability data | 4.1 Develop criteria for measuring performance improvement<br>4.2 Identify trends that may indicate need for remedial action and use to promote continuous improvement of performance<br>4.3 Modify policy and technical solutions in response to data analysis, to ensure improvements are made<br>4.4 Determine scope, frequency and method of monitoring and reporting in consultation with stakeholders<br>4.5 Review data to ensure compliance with management of sustainability and legislative requirements<br>4.6 Document findings and present to stakeholders |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.2, 2.3, 2.6, 3.2, 4.2, 4.3, 4.5 | • Identifies, analyses and evaluates complex textual information from a range of sources and identifies relevant and key information |
| Writing | 1.2, 2.1, 2.4-2.6, 3.1-3.4, 4.1, 4.3, 4.4, 4.6 | • Produces detailed well-structured reports and related documentation, and develops recommendations using precise language and specialised terminology to convey an understanding of outcomes |
| Oral Communication | 2.4, 3.4, 4.4, 4.6 | • Articulates clearly using specific language suitable for clients and stakeholder audiences to convey requirements<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.5, 3.4 | • Uses mathematical formulae to determine resource requirements and evaluate workable timelines |
| Navigate the world of work | 2.1-2.3, 4.5 | • Recognises and responds to both explicit and implicit organisational procedures and protocols, and legislative and regulatory requirements |
| Interact with others | 4.6 | • Demonstrates sophisticated control over oral, visual and/or written formats, drawing on a diverse range of communication practices to achieve goals |
| Get the work done | 1.1-1.6, 2.1, 2.6, 3.1-3.4, 4.1-4.3 | • Develops flexible plans for complex, high impact activities, with strategic implications that involve a diverse range of stakeholders with potentially competing demands<br>• Takes responsibility for defining key aspects of own workload, balancing own needs and priorities with those of the work group<br>• Systematically gathers and analyses all relevant information and evaluates options to make high-impact and informed decisions<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks<br>• Uses formal analytical and lateral thinking techniques for identifying issues, and generating and |


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|---|---|---|
| | | evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS805 Manage improvements in ICT sustainability | ICTSUS7236A Manage improvements in ICT sustainability | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS805 Manage improvements in ICT sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- analyse patterns of information and communications technology (ICT) use
- develop policy that complies with regulatory requirements
- develop a workable implementation strategy
- formulate solutions to reduce ICT based emissions
- develop measurable criteria for reviewing improvement.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss energy efficiency and alternative energy sources
- assess the risks, hazards and controls associated with sustainable improvements in ICT
- outline industry standards
- explain the following aspects of IT:
  - hardware
  - interfacing
  - networking
  - software
- describe the legislative framework underpinning sustainability
- explain policy development processes and practices
- summarise principles, practices and available tools and techniques of sustainability management in the ICT industry
- outline relevant International Organization for Standardization (ISO) standards


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- discuss sustainability from a local, national and international perspective
- summarise sustainability including ecological, economic and social issues.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- relevant government and scientific reports
- conference papers
- vendor white papers
- resources, tools and networking equipment
- suitable hardware and software
- suitable bandwidth for internet connections
- relevant legislation and regulations
- manufacturers' technical specifications
- relevant ISO standards.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS806 Lead applied research in ICT sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan, conduct and report on applied research to influence strategic practices on information and communications technology (ICT) sustainability and outcomes within an organisational context. The unit also covers constructing an applied research strategy, using a range of applied research techniques, and analysing and presenting findings.

It applies to individuals who are in a leadership capacity and excellent innovators and communicators, with a very high level of technical management skills and knowledge of telecommunications networks and systems. In this role, individuals must be able to undertake detailed research, analysis and evaluation. Outcomes and solutions must be presented with clarity.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Provide | 1.1 Provide vision for applied research strategy to meet sustainability |


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| direction for development of applied research strategy for ICT sustainability | requirements of identified research purpose<br>1.2 Clarify and confirm applied research purpose and needs of target group<br>1.3 Facilitate development of policies and procedures in relation to conducting applied research for enterprise<br>1.4 Guide development of mechanisms for collecting and maintaining data in systematic manner<br>1.5 Review factors affecting reliability and validity of data<br>1.6 Review relevant research ethics and codes of conduct |
| 2. Control use of range of applied research techniques and resources | 2.1 Review and evaluate range of applied research methods and theories, and data collection techniques<br>2.2 Guide selection of appropriate methods to gather and analyse data on sustainability relevant to research project<br>2.3 Authorise access to appropriate sources of information relevant to research project<br>2.4 Select sustainable management principles that will have most sustainable impact on project<br>2.5 Ensure relevance of research through integrity of data collected and analysis tools used |
| 3. Promote findings | 3.1 Ensure accuracy of data and research details, and adherence to any legal requirements<br>3.2 Evaluate relevance of collated and analysed data against original applied research strategy<br>3.3 Evaluate impact of findings<br>3.4 Recommend implementation strategies<br>3.5 Ensure documentation and presentation of research findings is in clear and logical manner consistent with audience needs<br>3.6 Identify need for and appropriate approach to further research<br>3.7 Promote research findings and approach to further research |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.5, 1.6, 2.1-2.3, 2.5, 3.1-3.3 | • Identifies, analyses and evaluates complex information and formal documentation, including legislative frameworks and technical solutions |
| Writing | 1.2, 2.3, 3.4, 3.5, 3.7 | • Produces complex, detailed and well-structured reports, procedures and related technical documentation using specific language and specialised terminology to convey an understanding of outcomes |
| Oral Communication | 1.2, 2.3, 3.4, 3.5, 3.7 | • Articulates clearly and creatively, using specific language suitable for clients and stakeholder audiences to convey requirements<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.4, 1.5, 2.2, 3.2 | • Uses mathematical formulae to determine $CO^2$ emissions and carbon footprint<br>• Performs complex statistical analysis |
| Navigate the world of work | 1.6, 3.1 | • Recognises and responds to both explicit and implicit organisational procedures and protocols<br>• Monitors adherence to legal and regulatory rights and responsibilities for self and possibly for others |
| Get the work done | 1.1-1.5, 2.1, 2.2, 2.4, 2.5, 3.1-3.5 | • Develops flexible plans for complex, high impact activities with strategic implications that involve a diverse range of stakeholders with potentially competing demands<br>• Takes responsibility for defining key aspects of own workload, balancing own needs and priorities with those of the work group<br>• Systematically gathers and analyses all relevant information and evaluates options to make high-impact and informed decisions<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is |


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| | | retrieved and how it may be interpreted and used |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTSUS806 Lead applied research in ICT sustainability | ICTSUS8237A Lead applied research in ICT sustainability | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS806 Lead applied research in ICT sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- direct the formulation of a research proposal or plan that includes:
  - specific research questions on sustainability
  - valid population or sample size
  - description of the geographical, cultural, social or institutional context within which the research will be carried out
  - a full description of the data collection methods
  - analysis of the limitations to research design
- manage the design of an applied research project using appropriate tools and techniques
- design a research report with analysis of data, and valid and reliable findings
- evaluate relevance of the research results
- conduct research using recognised research techniques.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise environmental and sustainability legislation, regulations and codes of practice applicable to the industry and organisation
- explain audit methodology on information and communications technology (ICT) energy, waste, product life cycles and $CO^2$ emissions
- discuss principles, practices and available tools and techniques of sustainability management relevant to the telecommunications industry
- describe communication processes and methods


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- explain data collection methods
- summarise legislation, regulations, policies, procedures and guidelines relating to handling or storing data, including privacy and freedom of information
- describe presentation techniques
- outline reporting methods
- discuss research ethics and codes of conduct
- summarise research tools and methods
- discuss selection of appropriate applied research techniques
- outline leadership strategies relevant to a research environment.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- a research activity that relates to an actual workplace or simulated context and topic
- a range of tools and techniques appropriate to the given situations and research topic.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSUS807 Conduct and manage a life cycle assessment for sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to conduct a life cycle assessment (LCA) to investigate and evaluate the human health and environmental impacts arising from the provision of a product, process or service.

It applies to individuals who are excellent communicators with a very high level of technical management skills and knowledge of telecommunications networks and systems. In this role, individuals must be able to undertake detailed research, analysis and evaluation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – sustainability

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define and scope project goal | 1.1 Access appropriate sources of information relevant to LCA project<br>1.2 Define goal of project<br>1.3 Specify information needed to inform decision makers |


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|---|---|
| | 1.4 Determine required level of specificity<br>1.5 Determine data organisation and display of results<br>1.6 Define scope of study<br>1.7 Determine ground rules for performing the work |
| 2. Conduct life cycle inventory (LCI) | 2.1 Generate life cycle flow diagram<br>2.2 Develop data collection plan for LCI<br>2.3 Collect actual data<br>2.4 Evaluate and document LCI results |
| 3. Conduct life cycle impact assessment (LCIA) | 3.1 Select and define impact categories<br>3.2 Classify LCI results to impact categories<br>3.3 Model LCI impacts within impact categories using science based conversion factors<br>3.4 Normalise potential impacts in ways that can be compared<br>3.5 Assign impact categories by grouping into one or more sets to facilitate interpretation of results<br>3.6 Assign weighting factors to emphasise most important potential impacts |
| 4. Interpret and evaluate results from LCI and LCIA and communicate them | 4.1 Identify significant issues based on LCI and LCIA<br>4.2 Evaluate completeness check, consistency check and sensitivity check<br>4.3 Make recommendations for improving product, process or service life cycle |
| 5. Report results of LCA study | 5.1 Document results of LCA study<br>5.2 Finalise report with conclusion, and make recommendations as a result of LCA study |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 2.4, 4.2 | • Identifies, analyses and evaluates a range of |


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| | | complex documentation, including legislative frameworks and technical specifications |
| Writing | 1.2-1.7, 2.1, 2.2, 3.1-3.6, 4.1, 4.3, 5.1, 5.2 | • Produces complex, detailed and well-structured media releases and other reports and procedures, using specific language and specialised terminology to convey an understanding of outcomes |
| Oral Communication | 1.3, 4.3, 5.2 | • Articulates clearly and creatively using specific language suitable for clients to convey requirements<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 3.6 | • Uses mathematical formulae to estimate $CO^2$ emissions, and analyse and confirm capacity, personnel and budgetary requirements and all other incidental LCA calculations |
| Get the work done | 1.1, 1.2, 1.4-1.7, 2.1-2.3, 3.1-3.6, 4.1, 4.2 | • Develops flexible plans for complex, high impact activities with strategic implications that involve a diverse range of stakeholders with potentially competing demands<br>• Takes responsibility for defining key aspects of own workload, balancing own needs and priorities with those of the work group<br>• Systematically gathers and analyses all relevant information and evaluates options to make high impact and informed decisions<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes, create opportunities and reduce risks<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising that design choices will influence what information is retrieved and how it may be interpreted and used<br>• Uses formal analytical and lateral thinking techniques for identifying issues, and generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTSUS807 Conduct and manage a life cycle assessment for sustainability | ICTSUS8238A Conduct and manage a life cycle assessment for sustainability | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTSUS807 Conduct and manage a life cycle assessment for sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- scope and define the goals of a unique life cycle assessment (LCA) for sustainability
- produce a life cycle inventory (LCI) using relevant software and data collection strategies
- use life cycle assessment and other software for researching and interpreting charts, flowcharts, graphs and other visual data and information
- evaluate LCI and life cycle impact assessment (LCIA) results, using completeness, consistency and sensitivity checks
- make best practice recommendations based on the results of the LCA study.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline best practice approaches relevant to own work area
- summarise environmental and sustainability legislation, regulations and codes of practice applicable to the industry and organisation
- outline the need to consider equal opportunity, equity and diversity principles and work health and safety (WHS) when conducting sensitivity checks for policy development
- outline policy development processes and practices
- explain principles, practices and available tools and techniques of sustainability management relevant to the telecommunications industry
- outline quality assurance systems relevant to own organisation
- discuss relevant organisational policies, procedures and protocols
- explain relevant systems and procedures to aid in the achievement of workplace sustainability


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- explain ICT power consumption calculations
- explain power consumption and energy audit methodology
- discuss estimating $CO^2$ emissions
- summarise environmental impacts of products, processes, systems and services.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – sustainability field of work and include access to:

- sites on which planning, design and integration of sustainability may be carried out
- relevant legislation, standards, guidelines, reports and equipment specifications and drawings
- a range of workplace documentation and personnel information and resources (such as compliance obligations, organisational plans and work responsibilities).

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTCR201 Use rigging practices and systems on telecommunications network structures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to perform rigging work during system installations for telecommunications radio structures.

It applies to individuals who are usually highly skilled verbal and non-verbal communicators working in a team environment. They must be appropriately licensed to complete high risk work and be able to safely use all required equipment.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – telecommunications rigging installation

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare rigging systems | 1.1 Prepare for work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site and confirm client requirements<br>1.3 Inform appropriate personnel of existing and potential site hazards |


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|---|---|
| | 1.4 Select tools and safety equipment required for safe rigging practice<br>1.5 Use rigging systems in telecommunications environment according to specifications<br>1.6 Identify proposed position of equipment to be mounted on telecommunications radio structures according to specifications and industry practice<br>1.7 Estimate safe working loads for rigging systems and equipment according to specifications<br>1.8 Select and inspect rigging equipment to ensure it is fit for purpose according to specifications |
| 2. Set up and carry out rigging work on telecommunications radio structures | 2.1 Set up rigging and dogging equipment following safe working practices and procedures according to all relevant work health and safety (WHS) legislation<br>2.2 Operate rigging equipment and install telecommunications antenna and associated equipment according to specifications<br>2.3 Use internationally recognised communication signals and protocols with crane drivers and helicopter crews according to the Crane Association Crane Safety Manual for Operators/Users |
| 3. De-rig and complete documentation | 3.1 De-rig and lower rigging equipment according to specifications<br>3.2 Restore site to client expectations following completion of installation according to industry practice<br>3.3 Complete documentation and notify client for sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.5-1.8, 2.1, 2.2, 3.1 | • Interprets textual information from relevant sources to identify equipment suitability and adhere to procedures and standards |
| Writing | 3.3 | • Legibly completes relevant reports and documentation using clear and technically specific language |
| Oral | 1.2, 1.3, 2.3, 3.3 | • Uses listening and questioning skills to confirm understanding for requirements, participates in a |


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| Communication | | verbal exchange of ideas and solutions, and uses appropriate, detailed and clear language to address key personnel and disseminate information |
| Numeracy | 1.7, 3.1 | • Uses mathematical formulae to estimate weights to make equipment adjustments |
| Navigate the world of work | 1.1, 1.3, 1.5-1.8, 2.1-2.3, 3.1, 3.2 | • Takes personal responsibility for adherence to legal and regulatory requirements, standards and specifications, and industry practices relevant to a rigging context, and draws attention to any issues that may affect self or others<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role in relation to communication signals |
| Interact with others | 2.3, 1.3 | • Cooperates with others as part of familiar routine activities, and contributes to specific activities requiring joint responsibility and accountability when reporting site hazards and communicating with crane drivers and helicopter pilots |
| Get the work done | 1.1-1.8, 2.1-2.3, 3.1-3.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of the rigging context to identify relevant information and risks, and to identify and evaluate alternative strategies and resources<br>• Uses systematic, analytical processes in rigging situations, setting goals, gathering relevant information, and identifying and evaluating options for selection of tools and safety equipment, and selection, positioning and safe loading of rigging equipment<br>• Recognises and addresses some unfamiliar problems of increasing complexity within own scope, recognising when to seek the expertise of others in relation to selection and safe use of tools and equipment, identification of site hazards and site restoration |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTCR201 Use rigging practices and | ICTTCR2188A Use rigging practices and | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| systems on telecommunications network structures | systems on telecommunications network structures | Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTCR201 Use rigging practices and systems on telecommunications network structures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- apply work health and safety (WHS) requirements and work practices associated with rigging
- carry out basic dogging skills
- carry out basic rigging skills
- use specialised hand or power tools and equipment normally used in rigging.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the features and operating requirements of rigging equipment
- explain hypothermia symptoms and methods of prevention and treatment
- discuss licensing and regulatory issues applying to rigging practices and systems on telecommunications radio structures
- summarise knowledge of meteorology and weather prediction
- describe remote-area first aid
- explain:
  - electromagnetic radiation (EMR) safety practices
  - optical fibre-cabling and equipment safety practices
  - personal protective equipment for rigging projects
  - requirements of WHS legislation, relevant regulations, and applicable site and company WHS procedures
  - rigging practices and systems to telecommunications radio structures
  - working-at-heights safety practices.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – telecommunications rigging installation field of work and include access to special purpose tools, equipment and materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTCR202 Use operational safety in a telecommunications rigging environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to use fall arrest, fall guarding and fall restraint when working at heights in a telecommunications rigging environment for standard telecommunications structures.

It applies to individuals who are usually highly skilled communicators working in a team environment. They must be appropriately licensed to complete high-risk work and be able to safely use all required equipment.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – telecommunications rigging installation

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use operational safety in telecommunications | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards, and applicable to fall arrest, fall guarding and fall restraint systems |


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|---|---|
| rigging environment | 1.2 Select tools and safety equipment required for safe rigging practice |
| 2. Assess hazards associated with wearing safety equipment | 2.1 Inform appropriate personnel of potential faults and non-compliances in personal equipment<br>2.2 Inform appropriate personnel of primary hazards associated with use of safety harness and associated equipment and control strategies |
| 3. Check and fit safety harness | 3.1 Use correct safety harness fitting method<br>3.2 Confirm that lanyard is appropriate for task and check lanyard and harness for faults according to manufacturer's specifications and workplace procedures<br>3.3 Fit safety harness according to manufacturer's instructions |
| 4. Use a safety harness in telecommunications environment | 4.1 Minimise risks to self and others while using safety harness and lanyards using identified safety principles associated with effective fall arrest, fall guarding and fall restraint systems<br>4.2 Confirm safety of possible hook-on points and select optimum hook-on points<br>4.3 Attach and detach lanyards in safe manner to and from anchor points |
| 5. Verify rescue plan to be activated in event of a fall | 5.1 Confirm rescue plan is in place with work supervisor<br>5.2 Notify individuals of their roles in rescue plan<br>5.3 Provide report to supervisor on application of operational safety in rigging practice in telecommunications environment |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 3.2, 3.3 | • Interprets textual information from relevant sources to identify equipment suitability and adhere to procedures and standards |
| Writing | 2.1, 2.2, 5.1-5.3 | • Legibly completes relevant reports and documentation using clear and technically specific language |
| Oral Communication | 2.1, 5.1, 5.2 | • Uses listening and questioning skills to confirm understanding of requirements, participates in a verbal exchange of ideas and solutions, and uses |


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|---|---|---|
| | | appropriate, detailed and clear language to address key personnel and disseminate information |
| Numeracy | 1.2, 3.2 | • Performs basic mathematical calculations to compare and measure equipment requirements |
| Navigate the world of work | 1.1, 3.1-3.3, 4.1 | • Takes personal responsibility for adherence to relevant legislation, codes, regulations and standards relevant to own work context, and draws attention to any issues that may affect self or others<br>• Understands the nature and purpose of own role and associated responsibilities when using harness and lanyard, and how role contributes to the work of others in the immediate work context<br>• Recognises and follows protocols relating to manufacturer's instructions and safety principles and practices regarding fitting and use of harness and lanyards |
| Interact with others | 5.1-5.3 | • Understands what to communicate, with whom and how in routine work situations, and is learning how to identify the requirements of less familiar contexts |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 3.2, 4.2, 4.3 | • Plans a range of routine and some non-routine tasks, accepting stated goals and aiming to achieve them efficiently and safely<br>• Selects from a range of pre-determined options in routine situations, identifying and taking some situational factors into account in relation to hazard identification and safe work practices<br>• Recognises and takes responsibility for addressing predictable and some less predictable problems in familiar work contexts<br>• Initiates standard procedures when responding to familiar problems within immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTCR202 Use operational safety in a telecommunications rigging environment | ICTTCR2189A Use operational safety in a telecommunications | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | rigging environment | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTCR202 Use operational safety in a telecommunications rigging environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- apply all work health and safety (WHS) requirements and work practices associated with fall arrest, fall guarding and fall restraint when working at heights in a telecommunications rigging environment.
- check and fit a safety harness according to industry practice
- use a safety harness where a fall hazard exists at height in a telecommunications context
- produce a rescue plan to be activated in the event of a fall.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline electromagnetic radiation (EMR) safety practices
- discuss fall arrest, fall guarding and fall restraint when working at heights in a telecommunications rigging environment
- list features and operating requirements of rigging equipment
- identify government legislation, regulations, and by-laws relating to rigging works including:
  - applicable site and company WHS procedures
  - WHS legislation
  - relevant codes of practice
  - subsequent amendments in regards to fall arrest, fall guarding and fall restraint when working at heights in a telecommunications rigging environment
- describe hazards associated with wearing a safety harness and associated equipment


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- summarise licensing and regulatory issues applying to rigging practices and systems on telecommunications radio structures
- discuss optical fibre cabling and equipment safety practices
- identify personal protective equipment for rigging projects
- describe the rescue plan to be activated in the event of a fall
- outline risks present when working on telecommunications radio structures
- explain safe rigging practices and systems to telecommunications radio structures
- describe suspension trauma
- summarise working-at-heights safety practices
- identify workplace operational procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – telecommunications rigging installation field of work and include access to special purpose tools, equipment and materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to assess risk, use rigging equipment, and climb and perform rescues on standard telecommunications network structures.

It applies to technical staff who work in a team environment and who use rigging on telecommunications radio structures and may make use of rigging plant and equipment, fall arrest, fall guarding and fall constraint.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – telecommunications rigging installation

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to use safe rigging practices | 1.1 Notify appropriate personnel and take necessary precautions to minimise, control or eliminate hazards that may exist during work activities<br>1.2 Prepare for given work according to minimum approach distances for hazards on telecommunications network structures, as prescribed in relevant legislation, codes, regulations and |


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| | |
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| | standards |
| 2. Assess status and condition of telecommunications network structures and identify climbing route | 2.1 Inspect and assess status and condition of telecommunications structures, according to industry practice<br>2.2 Plot optimum climbing route to avoid hazards and ensure most effective use of selected equipment, according to manufacturer's instructions and industry practice |
| 3. Prepare climbing equipment | 3.1 Select climbing equipment in keeping with structures to be climbed, according to industry practice<br>3.2 Inspect climbing equipment for damage, according to specifications and industry practice |
| 4. Climb telecommunications network structures | 4.1 Use safe climbing practices when ascending telecommunications network structures according to work health and safety (WHS) practices<br>4.2 Maintain permanent attachment when more than three metres from ground, adhering to safety requirements<br>4.3 Maintain three points of contact at all times, according to industry practice<br>4.4 Manage ropes to avoid entanglement or fouling on structure<br>4.5 Maintain safe working and minimum approach distances from hazards on telecommunications network structures at all times, according to standards and regulations |
| 5. Use climbing and working fall arrest systems | 5.1 Perform transfers to and from climbing system and working system using fall prevention practices, according to industry practice<br>5.2 Use working fall arrest system, according to specifications |
| 6. Perform rescues | 6.1 Perform rescues according to situation, industry practice and local instruction<br>6.2 Ascertain and seek required medical treatment according to enterprise standards<br>6.3 Report accidents or incidents according to company procedures and local instructions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.2, 3.2, 4.1, 4.5, 5.1, 5.2 | • Interprets textual information from relevant sources to identify equipment suitability and adhere to procedures and standards |
| Writing | 1.1, 6.3 | • Accurately completes relevant reports and documentation using clear and technically specific language and diagrammatic information |
| Oral Communication | 1.1, 6.1, 6.3 | • Uses listening and questioning skills to confirm understanding for requirements, and participates in a verbal exchange of ideas and solutions<br>• Uses appropriate, detailed and clear language to address key personnel and to disseminate information |
| Numeracy | 1.2, 4.2, 4.3, 4.5 | • Uses mathematical formulae to calculate ratios and scale, make adjustments to equipment and interpret methodological information |
| Navigate the world of work | 1.2, 2.1, 2.2, 3.1, 3.2, 4.1-4.5, 5.1, 5.2, 6.1, 6.3 | • Takes personal responsibility for adherence to legal and regulatory requirements, standards, manufacturer's instructions and industry practice relevant to own work context, and draws attention to any issues that may affect self or others in relation to climbing and performing rescues |
| Get the work done | 1.2, 2.1, 2.2, 3.1, 3.2, 4.4, 6.2 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of the climbing and rescue context to identify relevant information and risks, and to identify and evaluate alternative strategies and resources<br>• Makes a range of critical and non-critical decisions regarding route, equipment and need for medical treatment in relatively complex climbing and rescue situations, taking a range of constraints into account<br>• Recognises and takes responsibility for addressing predictable and some less predictable safety problems in familiar work contexts |


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| | | |
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| | | • Initiates standard procedures when responding to familiar problems within immediate context<br>• Applies formal problem-solving processes when selecting equipment and managing ropes, breaking complex issues into manageable parts and identifying and evaluating several options for action |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures | ICTTCR2190A Use safe rigging practices to climb and perform rescues on telecommunications network structures | Updated to meet Standards for Training Packages<br><br>Minor changes to Performance Criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- use safe rigging practices according to all work health and safety (WHS) legislative requirements, regulations and standards
- assess the status and condition of the telecommunications structure to be climbed and plot a climbing route according to industry practice
- select climbing equipment and climb a telecommunications network structure
- work safely using climbing and working fall arrest systems
- perform rescues from telecommunications network structures to industry standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss falls, including:
  - fall factors according to the Guidelines for the Prevention of Falls
  - fall prevention
  - fall types according to Australian Standards and regulations
- list features and operating requirements of rigging equipment
- summarise optical fibre cabling and equipment safety practices
- identify personal protective equipment for rigging projects
- summarise, in relation to radio frequency (RF) electromagnetic radiation (EMR):
  - associated risks
  - methods of detecting


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    - need to verify and maintain the EMR hazard management plan against an on-site situation
    - preparing for work at a telecommunications site with potential EMR hazards
    - reporting EMR hazards safety practices
    - sources and types of RF EMR
- discuss rescue methods and practices relevant to the rigging environment
- outline safe rigging principles
- describe suspension trauma, including:
    - cause
    - effect
    - prevention
    - treatment
- discuss, in relation to a safety harness:
    - hazards associated with wearing a safety harness
    - how to check, fit and use a safety harness
    - the types and application of different safety harnesses
- explain licensing and regulatory issues applying to rigging practices and systems on telecommunications radio structures
- outline risks present when working on telecommunications radio structures
- clarify specific WHS issues that affect rigging, including:
    - relevant regulations, and applicable site and company WHS procedures
    - rigging practices and systems for telecommunications radio structures
    - safe climbing practices, including maintaining three points of contact while climbing
    - safe working and minimum approach distances for hazards on telecommunications network structures, according to standards and regulations
    - safety requirements when working at heights according to WHS legislation.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – telecommunications rigging installation field of work and include access to special purpose tools, equipment and materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTCR301 Build a telecommunications radio structure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to build a foundation, and assemble and mount a telecommunications radio structure.

It applies to individuals who have a dual specialist classification as rigger installers and who may install radio structures for Worldwide Interoperability for Microwave Access (WiMAX) wireless broadband access networks, antenna installation for radio and television broadcasting, and cellular mobile communications.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Pre-requisite Unit

ICTTCR201 Use rigging practices and systems on telecommunications network structures

ICTTCR202 Use operational safety in a telecommunications rigging environment

ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures

## Unit Sector

Telecommunications – telecommunications rigging installation

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential* | *Performance criteria describe the performance needed to* |


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| *outcomes* | *demonstrate achievement of the element.* |
|---|---|
| 1. Prepare materials and secure site | 1.1 Notify appropriate personnel and take necessary precautions to minimise, control or eliminate hazards that may exist during work activities<br>1.2 Determine nature and location of structure from construction design plans, relevant legislation, codes, regulations and standards<br>1.3 Determine materials, tools and equipment required from construction design plans<br>1.4 Check steel for assembly against construction design plans to ensure no parts are missing<br>1.5 Secure and clean site according to site security instructions for public safety |
| 2. Construct foundations for radio structure | 2.1 Locate other services according to industry practice, and arrange for relocation of services if required<br>2.2 Oversee excavation of foundation according to engineering specifications, and construction of foundations according to construction design plans<br>2.3 Install earthing according to construction design plans, enterprise work health and safety (WHS) guidelines and industry practice<br>2.4 Provide samples of concrete for analysis according to enterprise guidelines and manufacturer's specifications, relevant standards and regulations |
| 3. Assemble and mount telecommunications radio structure | 3.1 Select area free of interference and close to construction site suitable for structure assembly<br>3.2 Assemble radio structure in sections on ground according to engineering specifications, using personal protective equipment and following safety guidelines<br>3.3 Mount and secure preassembled sections to tower construction according to plans, specifications and enterprise WHS guidelines<br>3.4 Maintain vertical positioning of structure within twist tolerances during construction phase<br>3.5 Secure and tension guy wires according to construction design plans, enterprise WHS guidelines and industry practice |
| 4. Complete administrative duties | 4.1 Update original design plan with approved amendments and return to design section<br>4.2 Secure and clean up site to original condition in environmentally safe manner<br>4.3 Notify client and obtain sign off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2-1.5, 2.2-2.4, 3.2, 3.3, 3.5 | • Interprets textual information from relevant sources to plan, identify all job requirements and adhere to procedures and standards |
| Writing | 1.1, 4.1, 4.3 | • Accurately completes relevant reports and documentation, using clear and technically specific language and diagrammatic information |
| Oral Communication | 1.1, 2.1, 4.3 | • Uses listening and questioning skills to confirm understanding of requirements, and participates in a verbal exchange of ideas and solutions<br>• Uses appropriate, detailed and clear language to disseminate information |
| Numeracy | 1.2, 2.2, 3.2-3.5 | • Interprets numerical information and measures, and calculates ratios and scale |
| Navigate the world of work | 1.2, 1.5, 2.1-2.4, 3.2-3.5 | • Takes personal responsibility for adherence to legal and regulatory requirements, standards, manufacturer's guidelines and industry practice relevant to own work context, and draws attention to any issues that may affect self or others when preparing for and implementing building activities |
| Get the work done | 1.1-1.5, 2.1-2.4, 3.1, 4.2 | • Applies formal problem solving processes when tackling an unfamiliar problem in relation to equipment and logistics, breaking complex issues into manageable parts and identifying and evaluating several options for action<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency, and considering how to link with the work of others<br>• Applies formal processes when preparing for building, producing plans with logically sequenced steps, and reflecting awareness of |


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| | | |
|---|---|---|
| | | time and resource constraints and the needs of others in the immediate vicinity<br>• Implements actions as per plan, making slight adjustments if necessary and addressing unexpected issues<br>• Makes a range of critical and non-critical decisions in relatively complex building situations, taking a range of constraints into account in relation to equipment, tools and materials |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTCR301 Build a telecommunications radio structure | ICTTCR3062A Build a telecommunications radio structure | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTCR301 Build a telecommunications radio structure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- undertake pre-construction checks to ensure a safe working environment
- construct foundations according to engineering specifications
- select site for hoisting equipment, ensuring location is safe for the operator and the construction
- preassemble the structure at ground level, ensuring completion of each assembled component
- assemble and mount a telecommunications radio structure, including temporary and permanent guy anchors
- install functional and protective earthing systems, following security and safety procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the impact that weather conditions impose on the constructions and installation of telecommunications structures
- describe the safety risks associated with the installation of telecommunications equipment in remote areas including:
  - hypothermia symptoms and methods of prevention and treatment
  - electromagnetic radiation (EMR) safety practices
  - personal protective equipment for rigging projects
  - working-at-heights safety practices
- discuss the features and operating requirements of:


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  - construction equipment
  - rigging equipment
- identify the information required to build a telecommunications radio structure
- describe rigging practices and systems for telecommunications radio structures
- list legislation, codes of practice and other formal agreements that impact on the work activity
- summarise licensing and regulatory issues applying to rigging practices and systems on telecommunications radio structures
- describe manufacturer's requirements for safe operation of equipment
- discuss the following work health and safety (WHS) requirements:
  - WHS legislation and regulations
  - company procedures relating to the activity and site conditions
- discuss typical issues and challenges that can occur on an installation site.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – telecommunications rigging installation field of work and include access to special purpose tools, equipment and materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTCR302 Install radio plant and equipment on telecommunications structures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install basic telecommunications radio plant and equipment on standard telecommunications structures.

It applies to technical staff who install basic telecommunications radio plant and equipment on telecommunications structures and use rigging plant and equipment, fall arrest, fall guarding and fall constraint.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Pre-requisite Unit

ICTTCR201 Use rigging practices and systems on telecommunications network structures

ICTTCR202 Use operational safety in a telecommunications rigging environment

ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures

## Unit Sector

Telecommunications – telecommunications rigging installation

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements* | *Performance criteria describe the performance needed to demonstrate* |


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| | |
|---|---|
| *describe the essential outcomes* | *achievement of the element.* |
| 1. Prepare for installation of radio plant | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Arrange access to site and discuss client requirements<br>1.3 Inform appropriate personnel of existing and potential site hazards<br>1.4 Select tools and safety equipment required for safe rigging practice<br>1.5 Develop installation plans in agreement with client or site supervisor<br>1.6 Procure materials and verify delivery against inventory according to industry practice |
| 2. Install plant and equipment | 2.1 Set up rigging equipment for safe and effective use according to specifications<br>2.2 Install telecommunications radio equipment and feeders according to specifications and industry practice following work health and safety (WHS) and environmental requirements<br>2.3 Maintain installation progress documentation according to company and client requirements |
| 3. Assist with testing and fault finding | 3.1 Assist with testing of telecommunications radio equipment mounted on telecommunications structures<br>3.2 Identify and locate faults by interpreting test results and rectify according to industry practice<br>3.3 Document test results according to specifications and client requirements |
| 4. Clean up site and complete documentation | 4.1 De-rig and lower rigging equipment according to specifications<br>4.2 Restore site to client expectations following completion of installation, according to industry practice<br>4.3 Complete documentation and notify client for sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.6, 2.1, 2.2, 3.2, 3.3, 4.1, 4.3 | • Interprets texts from relevant sources to plan installations, identify job requirements and adhere to procedures and standards |
| Writing | 1.3, 1.5, 2.3, 3.3, 4.3 | • Uses correct terminology, spelling and grammar when advising others of requirements<br>• Develops and completes relevant reports and documentation using clear and technically specific language, and correctly recording numerical data and diagrammatic information |
| Oral Communication | 1.2, 1.3, 1.5, 1.6, 4.3 | • Uses listening and questioning skills to confirm understanding of requirements<br>• Participates in a verbal exchange of ideas and solutions and uses appropriate, detailed and clear language to address key personnel and client, and to disseminate information |
| Numeracy | 1.5, 1.6, 2.1, 2.2, 3.2 | • Uses mathematical formulae to take accurate measurements and to interpret technical data, and when purchasing supplies and creating supply lists |
| Navigate the world of work | 1.1, 1.6, 2.1-2.3, 3.2, 3.3, 4.1, 4.2 | • Takes personal responsibility for adherence to legal and regulatory requirements, standards, specifications and industry practice relevant to own work context, and draws attention to any issues that may affect self or others in relation to radio installations, de-rigging and site restoration |
| Get the work done | 1.1-1.6, 3.1, 3.2 | • Plans and implements a range of routine and some non-routine radio installation tasks, accepting stated goals and aiming to achieve them efficiently and safely<br>• Uses systematic, analytical processes when assisting with testing, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, actively looking for early warning signs and implementing contingency plans |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTCR302 Install radio plant and equipment on telecommunications structures | ICTTCR3191A Install radio plant and equipment on telecommunications structures | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTCR302 Install radio plant and equipment on telecommunications structures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- install basic telecommunications radio plant and equipment according to job specifications and all work health and safety (WHS) legislation, regulations, standards and environmental requirements
- assist with testing and fault-finding basic telecommunications radio plant and equipment mounted on telecommunications structures
- use effective communications skills related to:
  - dogging
  - work associates
  - supervisors
  - team members
  - enterprise documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline antenna principles
- outline the features and operating requirements of rigging equipment
- discuss relevant regulations and typical issues and challenges that may occur on site
- explain rigging practices and systems in relation to telecommunications radio structures, and related licensing and regulatory issues
- discuss the main principles of:
  - electromagnetic radiation (EMR) safety practices
  - optical fibre cabling and equipment safety practices


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  - working-at-heights safety practices
- summarise specific WHS requirements relating to the activity and site conditions, including:
  - basic survival skills
  - company WHS procedures
  - hypothermia
  - remote area first aid.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – telecommunications rigging installation field of work and include access to special purpose tools, equipment and materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTCR303 Protect against electromagnetic radiation and systems hazards when working on telecomms radio sites

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to protect personnel against electromagnetic radiation (EMR) and system hazards when working on standard telecommunications structures with radio sites.

This unit applies to technical staff who work on telecommunications radio sites and may make use of rigging plant and equipment, fall arrest, fall guarding and fall constraints on standard telecommunications structures.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – telecommunications rigging installation

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for work at telecommunications site with potential | 1.1 Prepare for given work using safe working practices and procedures according to WHS legislation, codes, regulations and standards<br>1.2 Assess potential sources of radio frequency (RF) EMR, allowing |


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| | |
|---|---|
| EMR hazards | permissible public and occupational EMR exposure limits according to Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)<br>1.3 Verify methods for determining EMR levels, and strategies for eliminating, minimising or isolating on-site EMR hazards according to industry practice<br>1.4 Confirm work objectives and specifications of equipment to be installed, according to design drawings, installation plans and equipment manufacturer's specifications<br>1.5 Select equipment and personal protective equipment required to support the EMR hazard management plan according to company policy |
| 2. Plan and carry out EMR hazard management plan in relation to on-site situation | 2.1 Produce EMR hazard management plan according to company policy<br>2.2 Consult with client to confirm EMR hazard management plan and update if required<br>2.3 Communicate agreed EMR hazard management plan to all personnel on site |
| 3. Monitor EMR hazard management plan | 3.1 Maintain ongoing communication to all personnel regarding amendments to EMR hazard management plan according to company policy<br>3.2 Ensure that personal radiation monitor (Radman) is worn according to manufacturer's instructions and industry practice |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 1.5, 3.2 | • Interprets textual information from relevant sources to plan, identify job requirements and adhere to procedures and standards |
| Writing | 2.1, 2.2, 3.1 | • Uses correct terminology, spelling and grammar when advising others of requirements<br>• Produces and completes relevant reports and documentation using clear and technically specific language, and accurately records numerical data and diagrammatic information |


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| | | |
|---|---|---|
| Oral Communication | 1.4, 2.2, 2.3, 3.1 | • Uses listening and questioning skills to confirm understanding of requirements<br>• Participates in a verbal exchange of ideas and solutions, and uses appropriate, detailed and clear language to address key personnel and client and to disseminate information |
| Numeracy | 1.4 | • Interprets numerical information and applies to specifications |
| Navigate the world of work | 1.1-1.5, 2.1, 3.1, 3.2 | • Takes personal responsibility for adherence to legal and regulatory requirements, standards, specifications, industry practice and company policy relevant to own work context, and draws attention to any issues that may affect self or others |
| Get the work done | 1.1-1.5 | • Uses systematic, analytical processes in relation to assessing potential hazards, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Applies formal problem solving processes when adapting rigging activities and requirements to particular sites and conditions, breaking complex issues into manageable parts and identifying and evaluating several options for action |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTCR303 Protect against electromagnetic radiation and system hazards when working on telecommunications radio sites | ICTTCR3192A Protect against electromagnetic radiation and system hazards when working on telecommunications radio sites | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTCR303 Protect against electromagnetic radiation and systems hazards when working on telecomms radio sites

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- produce and maintain the electromagnetic radiation (EMR) hazard-management plan for an on-site situation
- carry out work according to the EMR hazard management plan, job specifications and all work health and safety (WHS) regulations and standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the principles of EMR propagation from antenna
- identify features and operating requirements of rigging equipment
- outline licensing and regulatory issues applying to rigging practices and systems on telecommunications radio structures
- describe remote area first aid
- describe rigging practices and systems to telecommunications radio structures
- summarise EMR including:
  - sources and types of radio frequency EMR
  - associated risks
  - risk assessment and mitigation strategies
  - methods of detecting and reporting EMR hazards
  - potential dangers of overexposure
  - safety practices and devices
- outline optical fibre cabling and equipment safety practices


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- outline the relevant requirements of WHS legislation, relevant regulations, and applicable site and company WHS procedures
- describe working-at-heights safety practices.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – telecommunications rigging installation field of work and include access to special purpose tools, equipment and materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN201 Use electrical skills in telecommunications work

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required for an entry- level worker to use electrical skills, working with analog and digital, cabling and wireless networking in telecommunications.

It applies to individuals who undertake basic testing, circuit building, and evaluation of cable and wireless devices, and who may work in domestic, commercial or industrial situations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Connect up, test and verify DC and AC circuitry | 1.1 Identify any hazards and work health and safety (WHS) issues for a safe work site, and notify appropriate personnel<br>1.2 Connect a series and a parallel DC and AC circuit configuration following safe work practices<br>1.3 Choose appropriate test equipment and measure values of electrical quantities of circuits<br>1.4 Use calculations to verify measured values of electrical |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | quantities in a series and in a parallel circuit configuration<br>1.5 Compare measured values to calculated values, and determine reasons for any variations<br>1.6 Measure low voltage (LV), extra low voltage (ELV) or telecommunications network voltage (TNV) to determine if values are within equipment or power supply specifications<br>1.7 Use appropriate test equipment to measure AC voltage (multimeter) or AC current (clamp meter) in a safe manner that does not require an LV circuit to be disconnected<br>1.8 Test residual current devices (RCD) or earth leakage devices to ensure they are operational prior to working with AC mains powered equipment, power supplies and tools<br>1.9 Evaluate results and determine probable faults, if relevant |
| 2. Evaluate analog and digital signals | 2.1 Compare characteristics of an analog signal and a digital signal<br>2.2 Produce a layout using building blocks to represent a typical analog and a digital circuit showing different characteristics between an analog signal and a digital signal<br>2.3 Produce 4-bit binary codes with their decimal equivalent to represent output voltages of a digital to analog converter<br>2.4 Choose appropriate test equipment and measure output voltage of a digital device for *high* and *low* logic states |
| 3. Perform cable selection | 3.1 Compare basic transmission characteristics of different types of cables used in telecommunications and select the most appropriate cable type to suit application characteristics<br>3.2 Connect two devices with a patch cable and test the connection |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 3.1 | • Interprets textual information to inform decision-making process |
| Writing | 2.2 | • Uses industry specific language to produce technical documentation |


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| | | |
|---|---|---|
| Oral Communication | 1.1 | • Articulates specific concerns and issues clearly and listens to and acts on responses of others |
| Numeracy | 1.4-1.6, 1.9, 2.2, 2.4 | • Performs basic calculations to check data, make predictions and make comparisons<br>• Selects and uses appropriate tools to take measurements, analyse results and perform calculations |
| Navigate the world of work | 1.1, 1.2, 1.7, 1.8 | • Follows legislative requirements and organisational protocols, policies and procedures relevant to own role |
| Get the work done | 1.3, 1.5, 1.6, 1.9, 2.3, 2.4, 3.1 | • Determines job sequence and works logically and systematically to undertake clearly defined tasks<br>• Analyses task requirements to decide on appropriate equipment and practices<br>• Applies problem-solving processes to locate and resolve faults, and reviews impact of decisions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN201 Use electrical skills in telecommunications work | ICTTEN2008A Use electrical skills in telecommunications work | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN201 Use electrical skills in telecommunications work

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- use fundamental electrical principles to solve basic AC and DC electrical problems
- connect and test an AC and DC circuit
- evaluate and compare characteristics of analog and digital signals
- compare and select cables according to transmission characteristics.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe principles of AC and DC electricity and how it impacts telecommunications work including:
  - AC and DC electrical SI units of measurement
  - work health and safety (WHS) issues
  - Ohm’s law and other relevant calculations
  - circuit configuration
- identify and describe common AC and DC faults, fault finding techniques and use of testing equipment
- explain application of binary to decimal conversion and vice versa
- describe principles of analog and digital electronics and building blocks common to analog and digital circuits
- explain the distinction between analog and digital signals and devices
- explain encoding techniques and their application in wired, wireless and optical communications systems


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- outline features and applications of unshielded twisted pair (UTP), coaxial and fibre cables
- list typical electronic devices, cable types and their applications
- explain modulation techniques used in wired, wireless and optical communications systems
- explain techniques to convert analog to digital and digital to analog
- describe characteristics of signal transmission
- list and describe common telecommunications cables and the characteristics of use and application.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications Network Engineering field of work and include access to:

- appropriate AC and DC testing equipment
- manufacturer's documentation and equipment
- safety equipment.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN202 Use hand and power tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to safely use hand and power tools in the workshop and on the worksite.

It applies to individuals who may work as technical staff and who may make use of safety equipment and workshop facilities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for work activity | 1.1 Identify the type of work to be performed from work instructions<br>1.2 Select appropriate hand and power tools for work to be performed<br>1.3 Set up and check tools for use according to available information<br>1.4 Examine work environment and plan work with tools to maximise safety and productivity<br>1.5 Clear and clean work area to make it free of obstructions and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | allow clear access to tools |
| 2. Prepare work piece for tool use | 2.1 Mount, support or align work piece correctly to the tool or machine to be used<br>2.2 Anchor work piece securely where necessary to prevent movement |
| 3. Operate hand and power tools | 3.1 Use hand and power tools correctly according to industry and enterprise safe working practices<br>3.2 Use safety equipment during tool operation according to industry and enterprise safe working practices<br>3.3 Monitor tool operation continuously and discontinue use if abnormal operation occurs<br>3.4 Clean work area on completion of work |
| 4. Maintain hand and power tools after use | 4.1 Clean and store tools according to industry and enterprise safe working practices<br>4.2 Report abnormal tool operation or other problems according to established procedures<br>4.3 Perform programmed maintenance of tools according to work role<br>4.4 Arrange inspection of power tools according to regulatory requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3 | • Interprets and understands complex information required for preparation and use of tools |
| Writing | 4.2 | • Completes workplace documentation accurately using appropriate form and vocabulary |
| Navigate the world of work | 3.1, 3.2, 4.1, 4.2, 4.3, 4.4 | • Follows legislative requirements and organisational protocols, policies and procedures relevant to own role, with particular emphasis on safety |


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| | | |
|---|---|---|
| Get the work done | 1.1-1.5, 2.1, 2.2, 3.3, 3.4 | • Plans and prioritises tasks, developing and implementing a work program in line with expectations and work role<br>• Makes decisions around immediate, clearly defined tasks regarding use of tools, personal protective equipment (PPE), cleaning agents and waste disposal |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN202 Use hand and power tools | ICTTEN2140B Use hand and power tools | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN202 Use hand and power tools

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- accurately interpret work orders relevant to selection and use of tools
- interpret specifications and instructions relating to materials and equipment on which tools are to be used
- prepare work environment and set up tools for safe and effective use
- perform work processes following all relevant safety requirements applying to use of hand and power tools
- monitor tool operation for correct operation during use
- inspect completed work to verify correct tool operation and use
- communicate evidence of faults and other problems
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline electrical and compressed air safety
- describe equipment types, characteristics, technical capabilities and limitations
- describe features and operating requirements of hand and power tools
- outline general housekeeping policies and procedures
- define industry and worksite terminology
- identify information required to operate equipment according to a test specification
- identify job safety analysis (JSA) or safe work method statement
- list and describe legislation, codes of practice and other formal agreements that impact the work activity


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- identify manufacturer's requirements for safe operation of equipment
- list materials commonly used in the industry
- interpret safety data sheets (SDS) and materials handling methods
- outline operational, maintenance and basic diagnostic procedures
- identify and describe common power sources
- identify specific WHS requirements relating to the activity and site conditions
- describe typical issues and challenges that occur onsite.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications network engineering field of work and include access to:

- sites where hand and power tools may be used
- hand and power tools currently used in industry
- relevant regulatory and equipment documentation that impact the use of hand and power tools.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN203 Install and configure a home or small office network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required for entry level networking support to establish a small office or home office (SOHO) internet connected PC network.

It applies to individuals who may work as an installer or network technician configuring small networks with simple internet protocol (IP) addressing schemes that share a limited range of resources.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation of home or small office network | 1.1 Prepare for given work confirming site-specific work health and safety (WHS) and environmental requirements with appropriate personnel<br>1.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>1.3 Determine nature and scope of the network and network resources from job briefs or appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Select and obtain personal computer system and network device requirements according to enterprise procedures<br>1.5 Obtain operating instructions, manuals, hardware and software testing methodologies<br>1.6 Consult appropriate personnel to ensure task is coordinated effectively with others involved at the worksite |
| 2. Install and troubleshoot home or small office network | 2.1 Set up personal computer systems according to manufacturer's specifications and enterprise procedures<br>2.2 Set up, configure and share network resources between network devices<br>2.3 Determine network addressing scheme for network connectivity and confirm using calculations<br>2.4 Troubleshoot network and internet connectivity according to manufacturer's specifications and enterprise procedures<br>2.5 Identify security threats and initiate control measures according to enterprise procedures |
| 3. Complete and document network installation | 3.1 Restore worksite to safe condition according to established safety procedures<br>3.2 Record and store essential installation information according to enterprise procedures<br>3.3 Notify appropriate personnel of completion of the task according to enterprise procedures<br>3.4 Notify appropriate personnel and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 3.2, 3.4 | • Completes workplace documentation accurately using appropriate form and vocabulary for intended audience |
| Oral Communication | 3.3, 3.4 | • Conveys specific messages efficiently and uses an appropriate tone and vocabulary for intended audience |


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| | | |
|---|---|---|
| Numeracy | 2.3 | • Confirms decisions using basic calculations and predictions |
| Navigate the world of work | 1.1-1.4, 2.4, 2.5, 3.1-3.3 | • Follows legislative requirements and organisational protocols, policies and procedures relevant to own role |
| Interact with others | 1.1-1.3, 1.6 | • Collaborates and cooperates with others to achieve specific outcomes |
| Get the work done | 1.4, 1.5, 2.1-2.5 | • Prioritises and plans work to meet organisational requirements and client expectations<br>• Recognises and anticipates a range of problems, actively looking for early warning signs and implementing contingency plans when appropriate |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN203 Install and configure a home or small office network | ICTTEN2207A Install and configure a home or small office network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN203 Install and configure a home or small office network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- implement work health and safety (WHS) workplace procedures and practices
- plan installation of an internet connected network with advice and approvals of relevant personnel
- set up and configure wired and wireless networks with simple addressing schemes
- troubleshoot network and internet connectivity
- set up resource sharing
- deploy simple firewall network security
- obtain sign-off with relevant personnel.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline correct usage of tools and equipment
- describe enterprise WHS procedures
- outline basic computer systems and network operating systems
- describe computer networking principles (wired and wireless)
- outline network addressing systems (basic)
- explain network services and associated network models and protocols
- outline network security management
- outline troubleshooting procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications network engineering field of work and include access to:

- a site where installation of a small office home office network may be conducted
- tools, equipment and materials currently used in the industry
- relevant workplace procedures, specifications and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN204 Install and configure a small to medium business network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to establish and support a small to medium business network capable of providing wide area network (WAN) connectivity and common web internet services.

It applies to individuals who may be working as a small to medium enterprise (SME) internet protocol (IP) network installer, network technician or SME network support person.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications networks engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation of small to medium enterprise network | 1.1 Prepare for given work, confirming site-specific work health and safety (WHS) and environmental requirements with appropriate personnel<br>1.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Determine nature and scope of business network and network resources from job briefs or appropriate personnel<br>1.4 Select and obtain computer system and network device requirements according to enterprise procedures<br>1.5 Obtain operating instructions, manuals, hardware and software testing methodologies<br>1.6 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at worksite |
| 2. Install and configure small to medium enterprise network | 2.1 Set up wired infrastructure according to manufacturer's specifications and enterprise procedures<br>2.2 Set up and configure resource sharing on a network server<br>2.3 Install WAN connection and ISP services and configure according to enterprise procedures<br>2.4 Troubleshoot network and internet connectivity according to manufacturer's specifications and enterprise procedures<br>2.5 Implement data back-up and disaster recovery measures according to enterprise procedures |
| 3. Complete and document network installation | 3.1 Restore worksite to safe condition according to established safety procedures<br>3.2 Record and store essential installation information according to enterprise procedures<br>3.3 Notify appropriate personnel of completion of the task according to enterprise procedures<br>3.4 Notify customer and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3 | • Identifies and interprets scope of job and relevant procedures |
| Writing | 3.2, 3.4 | • Completes workplace documentation accurately using appropriate form and vocabulary for the intended |


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| | | |
|---|---|---|
| | | audience |
| Oral Communication | 3.3, 3.4 | • Conveys specific messages efficiently and uses an appropriate tone and vocabulary for intended audience |
| Numeracy | 1.3, 2.1 | • Makes calculations appropriate for measuring and estimating materials and for installation |
| Navigate the world of work | 1.1-1.3, 2.1, 2.3-2.5, 3.1-3.3 | • Follows legislative requirements and organisational protocols, policies and procedures relevant to own role |
| Interact with others | 1.1-1.3, 1.6 | • Collaborates and cooperates with others to achieve desired outcomes |
| Get the work done | 1.4, 1.5, 2.3-2.5 | • Prioritises and plans work to meet organisational standards, regulatory requirements and client expectations<br>• Recognises and anticipates a range of problems, actively looking for early warning signs and implementing contingency plans when appropriate<br>• Uses digital technologies and systems to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN204 Install and configure a small to medium business network | ICTTEN2208A Install and configure a small to medium business network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN204 Install and configure a small to medium business network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- implement work health and safety (WHS) workplace procedures and practices
- plan installation of a network that uses subnet addressing and provides internet service provider (ISP) services
- set up and configure wired infrastructure
- troubleshoot local network and wide area network (WAN) connectivity and services
- configure resource sharing on a network server
- provide network data back-up and disaster recovery.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify correct usage of tools and equipment
- outline data back-up services and procedures
- describe enterprise WHS procedures
- define ISP services
- outline network device configuration
- describe network models and topologies
- define subnet addressing
- outline troubleshooting procedures
- describe WAN services and ISP responsibilities.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications network engineering field of work and include access to:

- a site where installation of a small to medium business network may be conducted
- tools, equipment and materials currently used in industry
- relevant workplace procedures
- product and manufacturing specifications and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN205 Build and maintain a secure network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to build a simple and secure wired local area network (LAN) or wide area network (WAN) using a range of client server applications and services.

It applies to individuals who may work in job roles such as an installer of internet protocol (IP) networks, a WAN and LAN network technician or a WAN and LAN network support person.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to build LAN or WAN | 1.1 Prepare for given work confirming site-specific work health and safety (WHS) and environmental requirements, with appropriate personnel<br>1.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>1.3 Determine network design specification from job briefs or |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | appropriate personnel<br>1.4 Determine network addressing scheme for network connectivity and confirm using calculations<br>1.5 Select and obtain network hardware according to established procedures<br>1.6 Obtain operating instructions, manuals, hardware and software testing methodologies<br>1.7 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite |
| 2. Build and verify network | 2.1 Establish connections between network hardware according to manufacturer's specifications and established procedures<br>2.2 Verify network routing and switching to conform to network design specification<br>2.3 Set up, configure and share network resources between network devices |
| 3. Monitor network performance and troubleshoot network | 3.1 Monitor network traffic and assess performance metrics against manufacturer's specifications and established procedures<br>3.2 Identify security threats and initiate control measures according to enterprise procedures<br>3.3 Troubleshoot network and internet connectivity according to manufacturer's specifications and enterprise procedures |
| 4. Complete and document network build | 4.1 Restore worksite to safe condition according to established safety procedures<br>4.2 Record and store network schematics and network addressing scheme<br>4.3 Notify appropriate personnel of completion of the task<br>4.4 Notify customer and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.3, 2.1 | • Identifies and interprets scope of job and relevant procedures |
| Writing | 4.2, 4.4 | • Completes workplace documentation accurately using appropriate form and vocabulary for intended audience |
| Oral Communication | 4.3, 4.4 | • Articulates specific messages in a tone and manner appropriate for intended audience |
| Numeracy | 1.4, 3.1 | • Confirms and checks decisions using basic calculations and predictions |
| Navigate the world of work | 1.1, 1.2, 1.4, 1.5, 2.1, 3.1-3.3, 4.1 | • Follows legislative requirements and organisational protocols, policies and procedures relevant to own role |
| Interact with others | 1.1-1.3, 1.7, | • Collaborates and cooperates with others to achieve specific outcomes |
| Get the work done | 1.5, 1.6, 2.1, 2.2, 3.1-3.3, 4.2 | • Plans and prioritises tasks, developing and implementing a work program in line with organisational expectations, legislative requirements and work role<br>• Recognises and anticipates a range of problems, actively looking for early warning signs and implementing contingency plans when appropriate<br>• Uses digital technologies and systems to complete required tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN205 Build and maintain a secure network | ICTTEN2209A Build and maintain a secure network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN205 Build and maintain a secure network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- effectively implement work health and safety (WHS) workplace procedures and practices
- develop a network addressing scheme
- determine required network components to build the network
- plan, build, configure, test and analyse performance of a network
- troubleshoot network problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe enterprise WHS procedures
- explain internet and computer network communication
- outline network addressing schemes including open systems interconnect (OSI) and transmission control protocol (TCP)/IP model
- describe planning the cabling of ethernet networks
- define the seven layer OSI model
- identify correct tool and equipment usage
- identify troubleshooting procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications network engineering field of work and include access to:


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- a site where building and maintenance of secure network may be conducted
- tools, equipment and materials currently used in industry
- relevant workplace procedures
- product and manufacturing specifications and reference material.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN206 Operate new media software packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to produce a media design through selection and appraisal of media software tools, assessment and manipulation of software functions and the use and creation of graphics and editing media files.

It applies to individuals who want an introduction to the use of media software packages and may eventually lead to employment in graphic design, industrial design, or production of promotional and marketing media material.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify relevant new media software and supporting hardware to meet design brief | 1.1 Perform media work in a safe manner to comply with work health and safety (WHS) criteria and accepted industry practice<br>1.2 Identify basic requirements of media design brief, including user environment from customer specifications<br>1.3 Research and review new media software and hardware available to realise design requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Select a new media software program to meet design brief requirements<br>1.5 Identify relevant new media hardware to support design brief requirements<br>1.6 Select, re-encode and transcode relevant file formats to process and modify digital media files to suit user application |
| 2. Develop a new media graphic design | 2.1 Review design brief to ensure customer requirements are well interpreted<br>2.2 Procure or create suitable graphics, video or sound to meet requirements of design brief<br>2.3 Manipulate graphics, video or sound using freely available software tools for evaluating capabilities and limitations of different software packages<br>2.4 Produce a media design according to customer specifications, and save new media files using designated file formats |
| 3. Review new media design | 3.1 Evaluate media design for creative, dramatic and technical quality, file size, and data suitability to meet the brief<br>3.2 Test and run graphics, video and sound of media design as part of a multimedia presentation, and present designs in the appropriate format |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 1.4, 1.5, 2.1 | • Interprets workplace documents and confirms specifications are met |
| Numeracy | 2.3, 3.1 | • Calculates dimensions and measurements to meet job specifications |
| Navigate the world of work | 1.1 | • Follows legislative requirements and organisational protocols, policies and procedures relevant to own role |


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| | | |
|---|---|---|
| Get the work done | 1.3, 1.4, 1.6, 2.2, 2.3, 2.4, 3.1, 3.2 | • Prioritises and plans work to meet organisational expectations, legislative requirements and client expectations<br>• Recognises and anticipates a range of problems, actively looking for early warning signs and implementing contingency plans when appropriate<br>• Evaluates features of digital tools against set criteria to inform decisions about suitability<br>• Uses digital technologies and systems to enter, manipulate and store data |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN206 Operate new media software packages | ICTTEN2218A Operate new media software packages | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN206 Operate new media software packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- evaluate new media software
- manipulate files effectively
- produce an effective media design using two new media software packages
- evaluate a design
- test and run a design.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain functions and features of two new media applications
- define graphic design and stylistic language conventions
- identify software tools to develop, edit and test design
- outline principles of:
  - digital imaging and file formats
  - file management
  - transfer systems
  - video and sound file formats
  - visual design principles
- outline vendor product directions in new media hardware and software
- describe visualisation and interpreting creative information, scripts (text) and images.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications network engineering field of work and include access to:

- work stations with appropriate software tools
- media capable PCs
- peripheral media equipment with HD capability
- LAN with media server
- internet access.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN207 Install and test internet protocol devices in convergence networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required for entry-level installations and testing for internet protocol (IP) based telecommunications networking, using convergent technologies to deliver services of Next Generation Networks (NGN).

It applies to technicians and cable installers who install and maintain IP-based equipment for customer and service providers for NGN services, including internet protocol TV (IPTV), IP security, digital home networks, IP-based cable access TV (CATV), IP core and access networks, home automation, interactive TV, radio frequency identification (RFID), biometric recognition systems, mesh networks, smart grids and cloud computing.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather information to prepare for installation of IP device | 1.1 Obtain work health and safety (WHS) requirements and environmental requirements for a given work area, and clarify with appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Identify safety hazards and notify appropriate personnel<br>1.3 Obtain identified operating instructions, manuals, and hardware and software testing methodologies<br>1.4 Obtain documentation on a range of IP devices that can be networked according to the open system interconnection (OSI) reference model in networking<br>1.5 Obtain the range of required IP devices to be connected to the network and identify the IP-based telecommunications application that will be provided |
| 2. Prepare for installation of IP device | 2.1 Select IP device for installation that can be integrated into existing network<br>2.2 Obtain appropriate hardware, software, network protocols, peripheral devices and media types and connectors for configuration process<br>2.3 Draw physical topology of the device connection to network and seek approval from appropriate personnel<br>2.4 Obtain configuration details to start setting up device |
| 3. Configure and test IP device | 3.1 Determine network addressing scheme for mapping network connectivity and verify by calculations<br>3.2 Assign a valid static IP address to device<br>3.3 Use network commands to determine and verify the media access control (MAC) address, the IP address and network performance of the device<br>3.4 Determine security threats and initiate security solutions to prevent security breaches according to enterprise procedures |
| 4. Complete and document network installation | 4.1 Restore worksite to safe condition according to established safety procedures<br>4.2 Record and store essential installation information according to enterprise procedures<br>4.3 Notify appropriate person of task completion according to enterprise procedures |
| 5. Test wireless link | 5.1 Select types of wireless connections used in telecommunications<br>5.2 Set up a wireless link to connect two wireless devices, following safe work practices<br>5.3 Transmit data over the link and verify accuracy of received data |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3-1.5, 3.3, 3.1 | • Evaluates information and products from a variety of sources to ensure appropriateness to client needs |
| Writing | 2.3, 3.2, 3.3, 4.2, 4.3, 5.3 | • Develops accurate and industry specific drawings<br>• Writes computer code and commands and records technical data, ensuring correct syntax and accuracy |
| Oral Communication | 4.3 | • Uses clear language and concepts, and tone and pace appropriate for audience and purpose |
| Numeracy | 3.1 | • Performs basic mathematical calculations to compare and verify connectivity |
| Navigate the world of work | 1.1, 3.4, 4.1-4.3, 5.2 | • Understands roles and responsibilities for task and makes basic decisions on work and completion parameters<br>• Ensures knowledge of WHS requirements<br>• Recognises organisational expectations and follows explicit protocols and procedures<br>• Seeks clarification when required |
| Interact with others | 1.1, 1.2, 2.4 | • Follows instructions regarding what and how to communicate, following predetermined scripts<br>• Initiates a connection with others through verbal, or nonverbal communication responding as appropriate |
| Get the work done | 1.2-1.5, 2.1-2.4, 3.1-3.4, 4.1, 5.1-5.3 | • Plans and implements routine tasks and workload, making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities<br>• Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions and evaluates outcome effectiveness<br>• Responds to predictable routine problems and implements standard or logical solutions<br>• Uses digital technology for basic reading, recording and searching information, and for communications following routine procedures and security requirements |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN207 Install and test internet protocol devices in convergence networks | ICTTEN2219A Install and test internet protocol devices in convergence networks | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN207 Install and test internet protocol devices in convergence networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- prepare for installation of internet protocol (IP) device connected to a network
- set up and configure IP device with simple addressing schemes
- test and secure device against security threats
- produce essential installation information
- follow work health and safety (WHS) workplace procedures and practices
- test wireless link.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe principles of computer networking and identify common types and protocols used
- describe IP-based telecommunications and importance of network configuration including:
  - IP addressing
  - IP devices
- identify and describe the purpose of common hardware and software used in IP communications
- identify and summarise organisational policies and procedures relating to installation and testing of internet protocol devices
- describe common procedures for basic testing and troubleshooting an IP device
- describe procedures for assigning networking protocols
- explain the purpose for internet security and describe common configurations


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- describe various basic wireless technologies and their application in communications
- describe environmental factors requiring management on telecommunications equipment
- identify and describe WHS requirements and personal safety issues relating to installation and testing of internet protocol devices
- define open system interconnection (OSI) and explain various levels involved
- identify common types of peripheral devices used in network communications systems
- calculate using the binary system
- describe common computer commands used to verify and manage IP and network performance
- identify common security threats attributed to networks and specify solutions to combat these threats
- identify common wireless technologies used in communications.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications network engineering field of work and include access to:

- a small network with IP devices
- tools, equipment, materials and documentation required for installing and testing IP devices
- relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN301 Provide infrastructure for telecommunications network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install supporting infrastructure for telecommunications equipment and associated hardware equipment.

It applies to field officers, installation technicians or technical supervisors from carriers, contractors or other service providers who install switching, transmission and radio networks and the various transmission paths – including cable, optical fibre, radio, microwave and satellite.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation infrastructure work | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Notify customer to arrange site access and obtain installation plan and specifications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Conduct site survey to verify infrastructure installation requirements can be met<br>1.4 Identify site hazards and notify appropriate personnel to make site safe<br>1.5 Notify customer of alterations required to installation design and make recommendations for possible solutions<br>1.6 Obtain approval for alterations and update installation plan<br>1.7 Develop installation activity schedule to minimise workplace disruption and according to relevant regulations and standards<br>1.8 Obtain material supplies, safety equipment, resources, tools and test equipment so it is available when required for installation for safe work practice |
| 2. Build network equipment infrastructure | 2.1 Prepare for given work according to work health and safety (WHS) and environmental requirements<br>2.2 Build metal superstructure to house equipment according to manufacturer's specifications and to safety and electrical standards<br>2.3 Build ducts and tray ways for signal and data cabling and optical cables according to plan and specification after consultation with operational staff<br>2.4 Build busbars or power cabling infrastructure as specified on the plan<br>2.5 Install cable distribution frames according to plan and manufacturer's specifications<br>2.6 Install earthing to all metal infrastructures according to specifications |
| 3. Install power infrastructure | 3.1 Install batteries and rectifiers and connect according to manufacturer's and WHS requirements<br>3.2 Test and monitor battery discharge levels and obtain replacement batteries under warranty where required |
| 4. Supervise DC power distribution | 4.1 Coordinate and arrange for power distribution work to be performed by qualified personnel to meet electrical safety requirements and certifications<br>4.2 Monitor electrical work to ensure compliance with installation plan<br>4.3 Identify and rectify faults where possible or escalate according to enterprise policy |
| 5. Restore site and | 5.1 Attach infrastructure labels and designations according to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| complete documentation | enterprise requirements<br>5.2 Complete inspection sheets and declare asset ready for next stage of installation using appropriate sign-off documentation<br>5.3 Clean up and prepare site in readiness for next installation phase<br>5.4 Notify customer and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1-2.6, 3.1, 4.1, 4.2 | • Interprets and applies textual information from plans, specifications, legislation and regulatory documents to building and construction |
| Writing | 1.3, 1.5-1.7, 5.1, 5.2, 5.4 | • Documents outcomes and changes to plans using industry relevant terminology and recognised plan symbols<br>• Prepares documentation for outcomes of tests and inspections for reporting to clients and others |
| Oral Communication | 1.2, 1.4-1.6, 2.3, 5.4 | • Uses active listening skills and oral exchange when discussing and clarifying installation parameters and providing feedback to clients<br>• Actively engages with others to communicate work requirements and activities |
| Numeracy | 2.2-2.6, 3.2 | • Takes measurements and uses them for work layout and construction<br>• Makes calculations appropriate to measuring and estimating materials for construction |
| Navigate the world of work | 1.1, 1.7, 2.1, 2.2, 3.1, 4.1, 4.3, 5.1 | • Accepts responsibility and ownership for the task and makes decisions on completion parameters and the need of coordination with others<br>• Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 1.2, 1.4-1.6, 2.3, 3.2, 4.1 | • Selects and uses appropriate conventions and protocols when communicating to clients and co- workers in a range of work contexts |


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| | | |
|---|---|---|
| | | • Complies with work instructions and contributes to work group discussions using accepted conventions |
| Get the work done | 1.1, 1.3, 1.4, 1.7, 1.8, 2.2-2.6, 3.1, 3.2, 4.1-4.3, 5.2, 5.3 | • Takes responsibility for planning, sequencing and prioritising tasks and workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN301 Provide infrastructure for telecommunications network equipment | ICTTEN3054B Provide infrastructure for telecommunications network equipment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN301 Provide infrastructure for telecommunications network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify potential earthing locations, cable routes, cables trays, data cabinets, telecommunication enclosures and distributors
- build metal superstructure
- install protective earth and functional earth installations
- install power infrastructure
- supervise DC power distribution
- discuss and inform the customer on the progress of works and obtain sign off when completed.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe cabling types, connectors and cabling structures
- recognise common customer telecommunications applications and related equipment
- demonstrate connections to carrier infrastructure or equipment
- recognise and describe current legislation relating to installation of telecommunications equipment and connection to carrier services
- describe environmental impact of cabling works, including options for green ICT installations
- describe network topologies, interface and interconnect solutions
- recognise and describe work health and safety (WHS) requirements for:
  - working in confined spaces
  - electrical safety


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  - working at heights
  - lifting
  - materials handling
  - other physical hazards
- outline network and transmission equipment and their application
- describe power requirements and electrical safety as they apply to the network environment
- recognise warranty information for equipment supplies and contractor work guarantees.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications networks engineering field of work and include access to:

- a site where installation of supporting infrastructure may be conducted
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impact work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN302 Install telecommunications network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to effectively install and test telecommunications network equipment. It includes processes for checking plans, obtaining equipment, and handling equipment and supplies.

It applies to field officers, technicians or technical supervisors employed by carriers, contractors or other service providers, who install new, or replace old, switching, transmission and radio networks and various transmission paths – including cable, optical fibre, radio, microwave and satellite telecommunications equipment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan for installation of telecommunications network equipment | 1.1 Prepare for given work according to relevant work health and safety (WHS) and environmental requirements<br>1.2 Notify customer to arrange site access if necessary<br>1.3 Assess existing and potential site hazards<br>1.4 Verify location of proposed network equipment installation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | according to appropriate plans obtained from authorised personnel<br>1.5 Develop installation plans to ensure minimal workplace disruption and according to relevant legislation, codes, regulations and standards<br>1.6 Obtain tools and test equipment required for safe work practice<br>1.7 Notify affected parties of possible network outage, if required |
| 2. Install network hardware and cabling | 2.1 Install network equipment according to the plan and manufacturer's instructions, using safe industry practices<br>2.2 Insert equipment cards and modules<br>2.3 Install all interconnecting cables to specification<br>2.4 Confirm service interruption is within limits agreed with customer<br>2.5 Document all installation drawings for customer |
| 3. Install equipment accessories | 3.1 Install alarms according to instruction manuals and specifications<br>3.2 Install operations administration and maintenance system according to specification<br>3.3 Install communication facilities for operational staff according to specification, taking into account any special needs of the site and operational staff<br>3.4 Install operator communication facilities according to needs and specifications |
| 4. Configure and test system | 4.1 Install software and configuration instructions according to system specifications, if required<br>4.2 Test to verify system performance according to customer requirements<br>4.3 Recommend any possible changes and confirm with customer<br>4.4 Record all test results |
| 5. Clean up worksite and complete documentation | 5.1 Remove and dispose of installation waste and debris from worksite according to environmental requirements<br>5.2 Restore changes made to work area during installation, to customer's satisfaction<br>5.3 Complete all installation documents and present to customer<br>5.4 Declare asset ready for commissioning and integration<br>5.5 Notify customer and obtain sign-off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 2.1, 2.3, 3.1-3.4, 4.1, 4.2 | • Interprets information from plans, specifications and manufacturers' instruction manuals |
| Writing | 1.5, 2.5, 4.4, 5.3, 5.5 | • Uses clear and specific terminology to produce installation plans and instructions appropriate for audience<br>• Records results of tests in required format using industry-specific language |
| Oral Communication | 1.2, 1.4, 1.7, 2.4, 4.3, 5.5 | • Uses appropriate strategies to establish and maintain dialogue, notify parties of disruptions and changes to planned work |
| Numeracy | 1.4, 1.5 | • Accurately interprets measurements from plans and applies results to installation plans and documents<br>• Calibrates test equipment and calculates and compares results with specifications |
| Navigate the world of work | 1.1, 1.4, 2.4, 5.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.2, 1.4, 5.4 | • Follows accepted communication practices and protocols<br>• Uses a range of strategies to establish a sense of connection and build rapport with clients/workmates |
| Get the work done | 1.3-1.6, 2.1-2.4, 3.1-3.4, 4.1, 4.2, 5.1, 5.2, 5.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes, occasionally negotiating changes<br>• Maintains required records and reports according to organisational requirements<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN302 Install telecommunications network equipment | ICTTEN3056A Install telecommunications network equipment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN302 Install telecommunications network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan and install network hardware and cabling according to equipment or system manuals and customer specifications
- configure and test installation
- verify cable continuity
- comply with all related work health and safety (WHS) requirements and work practices
- notify customer of work progress and obtain sign off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- select appropriate cabling types, connectors and cabling structures
- identify connections to carrier infrastructure or equipment
- recognise electrical and/or optical properties of installation
- describe network and transmission equipment principles
- outline power requirements and electrical safety
- explain typical performance parameters and faults that may be encountered in customer equipment and related connection and transmission media
- describe various test equipment types suitable for tests to be made
- identify handling and environmental compliances for waste disposal.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites where installation of telecommunications network equipment may be conducted
- network testing equipment currently used in industry
- relevant regulatory and equipment documentation that impact telecommunications network equipment installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN303 Locate, identify and rectify recurrent network faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to use systematic and logical fault-finding techniques according to all safety requirements and work practices.

It applies to individuals working as cablers and technicians who install and maintain a broad range of telecommunications networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for fault-finding activity | 1.1 Prepare for given work according to work health and safety (WHS) and environmental requirements<br>1.2 Arrange access to site according to required procedure<br>1.3 Locate existing and potential site hazards<br>1.4 Contact customer to verify nature of recurrent fault and the network type |
| 2. Conduct activities for | 2.1 Analyse fault history using fault records to establish nature of |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| recurrent network fault-finding | fault<br>2.2 Select test equipment and conduct appropriate test to identify potential faults ensuring the diagnostic process does not compromise the integrity of the network element or system<br>2.3 Evaluate test results to determine relevant symptoms of recurrent fault using appropriate methods and appropriate process<br>2.4 Locate probable cause, type and location of the fault<br>2.5 Rectify fault or escalate to appropriate level |
| 3. Report fault-findings and solutions | 3.1 Prepare customer report on the diagnostic procedure, fault identification and fault clearance<br>3.2 Update fault records database<br>3.3 Restore worksite to the customer's satisfaction<br>3.4 Notify customer and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1 | • Recognises and interprets technical documentation to determine important information |
| Writing | 1.4, 3.1, 3.2, 3.4 | • Uses clear, specific and industry-related terminology to develop basic reports and in all written tasks |
| Oral Communication | 1.4, 3.4 | • Liaises with customers about technical requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.3 | • Evaluates and reviews technical data for specifications |
| Navigate the world of work | 1.1, 3.3 | • Appreciates implications of legal and regulatory responsibilities related to own role<br>• Seeks advice about expectations when preparing for work |
| Get the work done | 1.2,1.3, 2.2, 2.4, | • Determines job priorities and works logically and systematically to undertake clearly defined and |


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| | | |
|---|---|---|
| | 2.5 | familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Diagnoses and implements standard solutions to for an increasing number of routine problems, seeking assistance from more experienced colleagues when required<br>• Understands purposes and specific functions of common digital systems and uses them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN303 Locate, identify and rectify recurrent network faults | ICTTEN3063A Locate, identify and rectify recurrent network faults | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN303 Locate, identify and rectify recurrent network faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- discuss faults with clients
- test telecommunications networks to identify faults
- identify and rectify recurrent faults
- conduct and report on a fault-finding task in a telecommunications network for a range of faults
- use systematic and logical fault-finding techniques in telecommunications networks and field testing procedures to particular workplace situations
- comply with all related work health and safety (WHS) requirements and work practices
- notify customer when work has been complete and obtain sign off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline application of Ohm’s law, impedance and reactance formulas to solve alternating current (AC) electrical problems when diagnosing faults
- summarise behaviour of faulty network elements, including symptoms and impact on network
- clarify interpretation of test results and network element/system specifications
- outline the operation and purpose of testing equipment
- explain the operation of transformers
- provide a summary of telecommunications networks
- describe performance testing and fault-finding techniques of telecommunications networks
- summarise systematic and logical fault-finding


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- describe types of power sources used in telecommunications networks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which network testing and fault-finding may be conducted
- line transmission, optical and radio measurement equipment currently used in industry
- system documentation, and other site-related documentation necessary to conduct tests and fault-finding investigations.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN304 Recover customer premises equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop and enact a recovery plan and recover, package and label communications equipment including telephony, data, video, digital broadcasting and computer networks on residential, commercial or industrial installations according to all safety requirements and work practices.

It applies to technical staff who dismantle and recover customer premises systems and equipment for new installations or upgrades of indoor or outdoor telecommunications equipment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to recover customer equipment | 1.1 Obtain relevant legislation, codes, regulations and standards<br>1.2 Notify customer for site access and location details of customer equipment for recovery<br>1.3 Identify site hazards and notify customer to make site safe |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Arrange for tools and lifting equipment if required |
| 2. Recover customer equipment | 2.1 Verify equipment is out of operational service and disconnect from all power feeds<br>2.2 Dismantle equipment and peripheral units according to work health and safety (WHS) and environmental requirements with minimal disruption to building occupants<br>2.3 Package and label recovered equipment and dispose of according to arranged disposal agreement |
| 3. Complete documentation and clean up worksite | 3.1 Amend site records to show existing equipment layout<br>3.2 Clean up and restore site to customer satisfaction<br>3.3 Collect and dispose of waste material and debris according to environmental requirements<br>3.4 Notify customer of job completion to obtain sign-off and present with a copy of documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.3 | • Recognises and interprets technical documentation, including equipment manuals and specifications |
| Writing | 1.2, 1.3, 2.3, 3.1, 3.4 | • Uses clear, specific and industry-related terminology to complete and update workplace documentation |
| Oral Communication | 1.2, 1.3, 2.3, 3.4 | • Liaises with customers about technical requirements, using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 2.2, 3.2, 3.3 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Get the work done | 1.1, 1.3, 1.4, 2.3 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks |


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| | | |
|---|---|---|
| | | • Implements actions according to a predetermined plan, making slight adjustments if necessary<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when responding to familiar logistical problems within immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN304 Recover customer premises equipment | ICTTEN3074A Recover customer premises equipment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN304 Recover customer premises equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- discuss equipment recovery options with customer
- develop a recovery plan
- safely disconnect, dismantle and recover customer premises' equipment
- package and label recovered equipment
- notify customer of progress and obtain sign off
- apply work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline relevant legislation, codes of practice and other formal agreements that impact the work activity
- summarise manufacturer requirements for safe operation of equipment
- summarise customer premises' equipment and customer premises' cabling
- explain regulatory and specific WHS requirements relating to the site
- describe types of power sources used with telecommunications equipment
- discuss the nature of customer equipment recovery and the documentation required to affect recovery
- identify and describe the use of equipment used for recovery work
- outline typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where recovery of customer premises' equipment can be conducted
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impact work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN305 Refurbish customer premises equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to renovate, repair and test recovered customer equipment for reinstallation.

It applies to individuals who are technically adept and may work on all types of customer premises' equipment (CPE), including telephony, data, video, digital broadcasting and computer networks, including local area networks (LAN) and multimedia in domestic, commercial or industrial installations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Process recovered equipment | 1.1 Conduct a visual inspection of external condition of the customer equipment, and assess for refurbishment<br>1.2 Conduct functional tests on equipment to determine suitability for repair<br>1.3 Liaise with customers to ensure equipment condition and repairs are understood and accepted |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Salvage, label and store functional equipment for use as spare parts<br>1.5 Label and scrap non-functional equipment and parts according to company procedures |
| 2. Renovate and repair equipment | 2.1 Clean and renovate equipment housing to acceptable standard for reuse<br>2.2 Conduct full functional and operational tests on equipment circuit boards for suitability for reuse<br>2.3 Repair and rectify faulty equipment circuit boards for reuse<br>2.4 Reassemble equipment circuit boards into renovated housings, and relabel accordingly<br>2.5 Reload new compatible software according to manufacturer's specifications<br>2.6 Conduct a final acceptance test on refurbished equipment according to manufacturer's specifications, and record test results |
| 3. Package refurbished product and complete documentation | 3.1 Prepare and place new labels on equipment and parts before using protective wrapping<br>3.2 Seal and label packaging with documentation according to specification<br>3.3 Store and assemble completed packages for distribution according to company requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 2.5, 2.6, 3.2, | • Recognises and interprets technical documentation including equipment manuals and specifications |
| Writing | 1.3, 1.4, 2.4, 2.6, 3.2, | • Uses clear, specific and industry-related terminology to complete and update workplace documentation |
| Oral Communication | 1.3 | • Effectively participates in verbal exchanges using collaborative and inclusive techniques including active listening and questioning and reading of verbal and |


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| | | |
|---|---|---|
| | | non-verbal signals to convey and clarify information |
| Get the work done | 1.1-1.4,<br>2.1-2.6, 3.1-3.3 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when responding to familiar equipment problems within immediate context<br>• Understands purpose and some specific functions of some common digital tools used in work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN305 Refurbish customer premises equipment | ICTTEN3075A Refurbish customer premises equipment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN305 Refurbish customer premises equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- discuss the repair and refurbishment options with customer
- process recovered equipment
- renovate and repair equipment
- package refurbished product.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe features and operating requirements of test equipment
- outline legislation, codes of practice and other formal agreements that impact the work activity
- summarise manufacturer's requirements for safe operation of equipment
- identify and describe operation of test equipment and the results they provide
- provide a summary of customer premises' equipment
- outline specific work health and safety (WHS) requirements relating to the activity and site conditions
- describe test methods and performance requirements
- outline typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- systems and equipment to refurbish
- test equipment and tools for refurbishment currently used in industry
- manufacturer's specifications.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN306 Commission an electronic unit

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to commission an electronic unit within a telecommunications environment with applications. Applications include voice over internet protocol (VoIP), radio frequency identification (RFID), security networks, telephony, data, video and multimedia.

The commissioning may be for a new installation or upgrade of capacity or technology for an existing network or subsystem for convergence to Next Generation Networks (NGN).

It applies to individuals working as field officers and technicians from telecommunications carriers, other service providers and contractors.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to commission electronic unit | 1.1 Prepare for work following work health and safety (WHS) requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Organise resources based on existing and potential site hazards<br>1.3 Notify customer or network operations personnel to gain site access and network specifications<br>1.4 Determine the type and complexity of electronic unit from specifications<br>1.5 Verify installed electronic unit and associated cabling conform to specifications<br>1.6 Establish commissioning dates and confirm with all parties<br>1.7 Determine commissioning parameters according to specification, and establish planned outage if required<br>1.8 Obtain test equipment and check suitability and calibration status<br>1.9 Produce a preliminary commissioning plan according to manufacturer's instructions and enterprise guidelines for discussion with customer<br>1.10 Inform affected customers of impending action and likely timing and impact of the work |
| 2. Organise planned outages | 2.1 Negotiate outage times with appropriate groups and affected customers to minimise disruptions<br>2.2 Refer to contingency plans and arrange for emergency communications if required<br>2.3 Notify alarm management centre of planned action<br>2.4 Obtain authority to proceed from relevant control centre and notify customers affected by the outage |
| 3. Perform commissioning procedures | 3.1 Program equipment or install software according to manufacturer's specifications<br>3.2 Set electronic unit parameters according to manufacturer’s specifications and customer requirements<br>3.3 Set up test equipment and conduct tests according to manufacturer’s specifications and industry practice<br>3.4 Connect and test network access facilities for correct performance<br>3.5 Conduct cut over according to project design and industry practice in consultation with appropriate personnel<br>3.6 Check remote alarm and monitoring features are functional, if applicable |
| 4. Finalise commissioning | 4.1 Update relevant databases according to enterprise and network |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| documentation | guidelines<br>4.2 Notify appropriate personnel of commissioning results and work completion<br>4.3 Complete administrative tasks according to industry practice and enterprise guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 1.5, 1.7, 1.9, 2.2, 3.1-3.3, 4.1, 4.3 | • Recognises and interprets technical documentation and specifications to determine important information |
| Writing | 1.3, 1.6, 1.9, 1.10, 2.1-2.4, 3.5, 4.1-4.3 | • Uses clear, specific and industry-related terminology to develop network documentation and update workplace records and in written communications with customers |
| Oral Communication | 1.3, 1.6, 1.10, 2.1, 2.3, 2.4, 3.5, 4.2 | • Liaises with appropriate personnel about technical requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.7 | • Evaluates and reviews technical data to determine commissioning parameters |
| Navigate the world of work | 1.1, 3.3, 3.5, 4.3 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 1.10, 2.1 | • Uses appropriate protocols when communicating in a range of familiar work contexts |
| Get the work done | 1.2, 1.6-1.8, 2.2, 2.4, 3.1-3.4, 3.6, 4.1 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks, arrange site access and organise necessary equipment and resources<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing |


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| | | |
|---|---|---|
| | | some unexpected issues<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when responding to familiar problems within immediate context<br>• Understands purposes and specific functions of common digital systems and uses them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN306 Commission an electronic unit | ICTTEN3077B Commission an electronic unit | Updated to meet Standards for Training Packages. | Equivalent Unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN306 Commission an electronic unit

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- commission an electronic unit according to specifications
- communicate effectively with stakeholders
- negotiate arrangements for commissioning
- deal with faults and problems and provide solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain electrical and/or optical properties to be measured
- identify common networking equipment
- outline legislation and licensing requirements surrounding installation of telecommunications equipment
- summarise network operation procedures
- explain power requirements and electrical safety
- describe test equipment types
- outline transmission type and signals that may be encountered.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which installation and commissioning procedures can be conducted


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- relevant regulatory and equipment documentation that impact commissioning
- testing equipment currently used in industry.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN307 Repair and replace telecommunications network hardware

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to fix and reinstate equipment in switching, transmission and fixed and mobile radio networks; including the various transmission path components, such as cable, optical fibre, radio, microwave and satellite.

It applies to individuals working as field officers, technicians or technical supervisors for carriers, or other service providers. It also applies to work performed under direction of the Network Operations Centre (NOC), where control of the network is coordinated.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for hardware repair and replacement | 1.1 Obtain relevant legislation, codes, regulations and standards for the given work<br>1.2 Discuss and record details of hardware to be repaired or replaced, and proposed work schedule with the appropriate person at NOC |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Work safely according to relevant safety legislation and company work practices, identifying hazards and using personal protective equipment<br>1.4 Obtain appropriate replacement hardware and associated documentation<br>1.5 Inspect network and determine need for repair task<br>1.6 Obtain tools and check they are in good working order<br>1.7 Undertake an impact risk assessment of the hardware replacement with the NOC, and prepare for contingencies using contingency plan |
| 2. Rectify fault by replacing hardware | 2.1 Replace equipment as instructed by the NOC following anti-static precautions in the case of sensitive electronic equipment and work health and safety (WHS) and environmental requirements<br>2.2 Inform NOC if problems occur with hardware replacement so escalation may commence and contingency plan initiated<br>2.3 Test replacement hardware to ensure satisfactory functionality |
| 3. Clean up worksite and complete administrative work | 3.1 Remove waste and debris from worksite and dispose of according to environmental requirements and restore work area to NOC satisfaction<br>3.2 Recover faulty equipment and return to appropriate point for disposal or refurbishment<br>3.3 Complete documentation, update fault records and make recommendations according to the enterprise quality assurance system<br>3.4 Notify appropriate person at the NOC of job completion and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3 | • Recognises and interprets technical, regulatory and enterprise documentation |


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| | | |
|---|---|---|
| Writing | 1.2, 1.4, 2.2, 3.3, 3.4 | • Uses clear, specific and industry-related terminology to complete and update workplace documentation |
| Oral Communication | 1.2, 2.2, 3.4 | • Liaises with a range of personnel about technical and operational requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.3 | • Uses a core group of mathematical formulas involving power, voltage, current and the resistance, capacitance or inductance of various components |
| Navigate the world of work | 1.3, 3.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Get the work done | 1.1, 1.4-1.7, 2.1, 2.3, 3.2, 3.4 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when responding to familiar faults within immediate context<br>• Understands purpose and some specific functions of common digital tools used in work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN307 Repair and replace telecommunications network hardware | ICTTEN3089A Repair and replace telecommunications network hardware | Updated to meet Standards for Training Packages. | Equivalent Unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN307 Repair and replace telecommunications network hardware

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- rectify fault as instructed by Network Operations Centre (NOC), following work health and safety (WHS) requirements and anti-static precautions
- replace telecommunications hardware within service assurance guidelines according to enterprise procedures
- update fault records database according to enterprise procedures
- liaise with appropriate personnel in the NOC for information and reporting purposes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain application of direct current (DC) and alternating current (AC) electrical principles
- describe static electricity and its importance in testing and working with telecommunications equipment
- describe behaviour of faulty network elements including symptoms and impact on network
- interpret test results and network element or system specifications
- describe the operation and purpose of testing equipment
- summarise common telecommunications hardware and network structures
- outline performance testing and fault-finding techniques of telecommunications networks
- explain systematic and logical fault-finding
- list types of power sources used in telecommunications networks
- select and describe appropriate test equipment used to undertake fault finding procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a suitable site to replace telecommunications network hardware
- a range of hardware currently used in industry
- a range of general and test equipment required for testing telecommunications network hardware.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN308 Maintain an electronic system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to inspect critical aspects of electronic systems, and replace and dispose of items confirming performance is within specification and operating levels are normal.

It applies to individuals working as technicians on site and from remote locations. This work does not include the major servicing of equipment or repair due to breakdowns.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to maintain system | 1.1 Consult with customer or property owner to arrange site access if required<br>1.2 Plan schedule of routine preventive maintenance for electronic system based on recommended maintenance periods from manufacturer’s handbooks and specifications<br>1.3 Report to appropriate person the impact of proposed maintenance activities on customer’s service delivery |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Confirm equipment is accessible and correctly set up for on-site preventive maintenance activities and for remote interrogation if required<br>1.5 Confirm alarms are functioning according to manufacturer's specifications and enterprise guidelines<br>1.6 Take corrective action if anomalies or faults are detected, according to enterprise guidelines and manufacturer's specifications |
| 2. Undertake preventive maintenance routines on site and remotely | 2.1 Conduct preventive maintenance according to planned schedule<br>2.2 Report to appropriate person any instances where maintenance activities cannot be fully met or where there are identified defects outside the planned schedule<br>2.3 Verify equipment is functioning against expected operational parameters to confirm operational status<br>2.4 Take corrective action if faults are detected, according to enterprise guidelines and manufacturer's specifications<br>2.5 Escalate to next level of support when required, where preventive maintenance activity falls outside own level of expertise<br>2.6 Dispose of on-site waste materials according to safe working practices and approved procedures |
| 3. Make recommendations and update records | 3.1 Record results of routine tests and make recommendations<br>3.2 Store records according to enterprise guidelines |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.5, 2.4, 3.2 | • Recognises and interprets technical documentation such as equipment manuals and specifications |
| Writing | 1.1, 1.3, 2.2, 3.1 | • Uses clear, specific and industry related terminology to develop network documentation, update workplace records, and in written communications with customers |
| Oral | 1.1, 1.3, 2.2 | • Participates in verbal exchanges about technical and operational requirements using specific and relevant |


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| | | |
|---|---|---|
| Communication | | language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.3 | • Evaluates and reviews technical data to calculate measurements and adjustments to equipment |
| Navigate the world of work | 2.6 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 1.1, 1.3, 2.2 | • Selects and uses appropriate conventions and protocols when communicating with customers and co-workers in a range of work contexts |
| Get the work done | 1.2, 1.4-1.6, 2.1, 2.3-2.5, 3.2 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks and organise necessary equipment and resources<br>• May seek assistance from more experienced colleagues as required<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when responding to familiar problems within immediate context<br>• Understands purposes and specific functions of common digital systems and uses them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN308 Maintain an electronic system | ICTTEN3104A Maintain an electronic system | Updated to meet Standards for Training Packages. | Equivalent Unit |


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# Links

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# Assessment Requirements for ICTTEN308 Maintain an electronic system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify maintenance required
- communicate maintenance details to customers and work associates
- undertake preventive maintenance routines on site and remotely
- conduct tests
- interpret test results
- complete documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise features and operating requirements of electronic equipment
- describe legislation, codes of practice and other formal agreements that impact the work activity
- explain manufacturer's requirements for safe operation of equipment
- describe specific work health and safety (WHS) requirements relating to the activity and site conditions
- describe testing methods and performance requirements
- explain troubleshooting and repair procedures
- outline typical issues and challenges that occur on site and when conducting remote maintenance.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a suitable site for maintenance of a range of equipment
- test equipment currently used in industry
- relevant regulatory and equipment documentation that impact work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN309 Provide infrastructure for telecommunications network customer equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install supporting infrastructure for telecommunications equipment and associated hardware, including access equipment and associated media, power and monitoring equipment, and alarm systems.

It applies to field officers, installation technicians or technical supervisors of contractors or other service providers for switching, transmission, radio networks and the various transmission paths, including cable, optical fibre, radio, microwave and satellite.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation infrastructure work | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Notify customer to arrange site access and obtain installation plan and specifications<br>1.3 Conduct a site survey to verify infrastructure installation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements can be met<br>1.4 Identify site hazards and notify appropriate personnel to make site safe<br>1.5 Notify customer of alterations required to installation design and make recommendations for possible solutions<br>1.6 Obtain approval for alterations, and update installation plan<br>1.7 Develop installation activity schedule to minimise disruption to the workplace and according to relevant regulations and standards<br>1.8 Obtain material supplies, safety equipment, resources, tools and test equipment to be available when required for installation for safe work practice |
| 2. Build customer equipment infrastructure | 2.1 Prepare for given work according to work health and safety (WHS) and environmental requirements<br>2.2 Build telecommunications closet or telecommunications equipment room to house equipment, distributors and AC-DC power systems according to design plans, manufacturer's specifications and to safety and electrical standards<br>2.3 Build cable support systems for signal, data cabling and optical cables, including entrance facilities, intra, and inter building facilities according to plan and specification<br>2.4 Organise installation of mains AC electrical power cabling infrastructure as specified on the plan<br>2.5 Install cable distribution frames according to plan and manufacturer's specifications<br>2.6 Install protective earthing to metal infrastructures or gas arrestors according to specifications or design |
| 3. Install uninterrupted power supply (UPS) power infrastructure | 3.1 Install batteries, rectifiers and uninterrupted power supply (UPS) systems as required by specifications or design and connect according to manufacturer's and work health and safety (WHS) requirements<br>3.2 Test and monitor UPS battery discharge levels and obtain replacement batteries under warranty where required<br>3.3 Identify and rectify faults where possible or escalate according to enterprise policy |
| 4. Restore site and complete documentation | 4.1 Attach infrastructure labels and designations according to enterprise requirements<br>4.2 Complete inspection sheets and declare asset ready for customer |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | sign-off documentation<br>4.3 Clean up site<br>4.4 Notify customer and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.2-2.6, 3.1, 3.2, | • Reads and interprets plans, specifications and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 1.3, 1.6, 4.1, 4.2, | • Accurately records information and prepares correspondence and documentation using clear language and organisational formats and protocols |
| Oral Communication | 1.2, 1.4, 1.5, 4.4 | • Effectively participates in verbal exchanges using collaborative and inclusive techniques including active listening and questioning and reading of verbal and non-verbal signals to convey and clarify information |
| Numeracy | 1.3, 2.2, 2.3, 2.5, 2.6, | • Takes measurements and use them for work layout and construction<br>• Makes calculations appropriate for measuring and estimating materials for construction |
| Navigate the world of work | 1.7, 2.1, 2.2, 3.1, | • Complies with explicit policies and procedures<br>• Explores and implements, where identified, implicit expectations of policies and procedures<br>• Ensures knowledge of legislative requirements and products is kept up to ensure compliance |
| Get the work done | 1.2-1.8, 2.1-2.6, 3.1, 3.2, 4.1, 4.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying |


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| | | |
|---|---|---|
| | | problem-solving processes in determining a solution |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN309 Provide infrastructure for telecommunications network customer equipment | ICTTEN3250B Provide infrastructure for telecommunications network customer equipment | Updated to meet Standards for Training Packages.<br>Removed one PC.<br>Clarified other PCs. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN309 Provide infrastructure for telecommunications network customer equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify potential earthing locations, cable routes, cables support systems, data cabinets, telecommunication enclosures and distributors
- construct metal superstructure and racks
- install protective earth installations
- organise AC mains power infrastructure
- install uninterrupted power supply (UPS) back up power
- notify customer of works progress.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe cabling types, connectors and cabling structures used in telecommunications networks
- identify and describe common customer telecommunications applications and related equipment
- identify connections to carrier infrastructure or equipment
- identify and summarise current legislation relating to installation of telecommunications equipment and connection to carrier services
- list tools and test equipment required for an infrastructure installation
- describe the process of a site survey, and the data that should be recorded
- describe environmental impacts, including options for information and communications technology (ICT) installations
- discuss network topologies, interface and interconnect solutions


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- identify work health and safety (WHS) requirements for managing hazards on the worksite including:
  - confined spaces
  - electrical safety
  - working at heights
  - lifting
  - materials handling
  - physical hazards
- summarise network and transmission customer equipment likely to be encountered
- describe common backup UPS systems and AC mains power requirements and electrical safety for telecommunications networks
- discuss types of warranty information for equipment supplies and contractor work guarantees
- describe the importance of correctly labelling an installation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where installation of supporting infrastructure may be conducted, or a simulated environment
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impact work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN310 Remove and replace electronic circuit boards in carrier equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 3.0. |

## Application

This unit describes the skills and knowledge required to remove and replace electronic circuit boards and associated equipment in switching, transmission, fixed, mobile radio, access and site environmental management networks, including the various transmission path components.

It applies to linesworkers, technicians or technical supervisors working for carriers, or other service providers. It also applies to work, which may be performed under direction of the relevant authority.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications networks engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for hardware replacement | 1.1 Obtain repair/replacement brief, relevant legislation, codes, regulations and standards for the job<br>1.2 Discuss and record details of hardware to be removed or replaced, and proposed work schedule with the relevant authority<br>1.3 Inspect network and determine the scope of the repair task |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Work safely according to relevant safety legislation and client practices<br>1.5 Obtain appropriate new or replacement hardware and associated installation documentation<br>1.6 Obtain tools and check they are in good working order<br>1.7 Undertake an impact risk assessment of the hardware replacement with the relevant authority and prepare a contingency plan |
| 2. Replace hardware | 2.1 Notify relevant authority of any building or equipment cabinet alarms that might be activated by accessing site<br>2.2 Verify serial/part numbers of replacement card<br>2.3 Determine card suite, rack, shelf and slot location<br>2.4 Remove and replace connecting cables and card as required<br>2.5 Replace electronic equipment, as instructed by the relevant authority, following relevant anti-static precautions<br>2.6 Complete associated jumpering or cabling as required<br>2.7 Request relevant authority or integration team to activate the card<br>2.8 Escalate any hardware replacement problems with the relevant authority and implement contingency plan<br>2.9 Restore pressurisation systems as required |
| 3. Clean up worksite and complete required documentation | 3.1 Remove and dispose of waste and debris from worksite, according to environmental requirements, and restore work area<br>3.2 Recover faulty equipment and return to appropriate point for disposal or refurbishment<br>3.3 Complete documentation, update fault records and make recommendations according to the client practices<br>3.4 Notify relevant authority of job completion and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 3.3 | • Recognises and interprets technical, regulatory and enterprise documentation |
| Writing | 1.2, 1.3, 1.7, 2.1, 3.3, 3.4 | • Uses clear, specific and industry-related terminology to complete and update workplace documentation |
| Oral Communication | 1.2, 1.7, 2.1, 2.7, 2.8, 3.4 | • Liaises with a range of personnel about technical and operational requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.2, 1.5, 2.2, 2.6, 3.3 | • Uses mathematical formulae to calculate power, voltage, current and the resistance, capacitance or inductance of various components |
| Navigate the world of work | 1.1, 1.4, 2.5, 3.1, 3.2, 3.3 | • Complies with policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.2, 1.7, 2.1, 2.7, 2.8, 3.4 | • Uses appropriate practices and protocols to communicate effectively with a range of personnel |
| Get the work done | 1.1, 1.3, 1.5, 1.6, 1.7, 2.1, 2.3, 2.4, 2.6, 2.7, 2.8, 2.9, 3.1, 3.2, 3.3, 3.4 | • Plans, sequences and carries out tasks to meet required outcomes<br>• Analyses task requirements to made routine decisions, taking some situational factors into account<br>• Anticipates potential problems and prepares contingency plans<br>• Follows required procedures when responding to problems<br>• Understands purpose and some specific functions of common digital tools used in work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN310 Remove and replace electronic circuit boards in carrier equipment | Not applicable | New unit to meet skills required by the industry. | No equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN310 Remove and replace electronic circuit boards in carrier equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.0. |

## Performance Evidence

Evidence of the ability to:

- interpret, discuss and confirm required work
- obtain documentation, equipment and hardware for required work
- notify relevant personnel of alarms that could be activated in the access and restoration of equipment cabinets and enclosures
- prepare a contingency plan to use if card replacement is unsuccessful, in consultation with relevant personnel
- remove and replace circuit boards as instructed by relevant authority, following work health and safety (WHS) requirements and anti-static precautions
- replace telecommunications hardware according to client practices
- follow required practices or contingency plan if hardware replacement is unsuccessful
- update fault records and complete required documentation
- restore site to required condition
- liaise with personnel from relevant authority for information and reporting purposes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain application of direct current (DC) and alternating current (AC) electrical principles to the removal and replacement of circuit boards
- describe static electricity and its impact on electronic circuit boards in telecommunications equipment
- outline performance testing and fault finding techniques of telecommunications networks
- describe the purpose and operation of common testing equipment


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- describe the behaviour of faulty network elements including symptoms and impact on network
- summarise common telecommunications hardware and network structures
- list types of power sources used in telecommunications networks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a suitable site to replace telecommunications network hardware
- a range of hardware currently used in industry
- a range of general and test equipment required for testing telecommunications network hardware.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN311 Inspect, clean and handle optical fibre cable and connectors

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package version 3.0. |

## Application

This unit describes the skills and knowledge required to inspect and clean optical fibre connectors and to follow handling and placement practices for optical fibre patch leads and cables. It relates to practices necessary in the installation and patching of fibre for new or replacement cables in switching, transmission and fixed and mobile radio networks.

It applies to linesworkers, technicians or jointers working for carriers, or other service providers. It also applies to work performed under direction of the relevant authority.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications networks engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for fibre patching | 1.1 Obtain relevant legislation, codes, regulations and standards for the given work<br>1.2 Obtain the design schematics and cut over sequence for fibre patching<br>1.3 Discuss and record details of activities and work schedule with |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the relevant authority<br>1.4 Work safely according to relevant safety legislation and company work practices, identifying hazards, including laser safety, dangerous materials handling and using personal protective equipment<br>1.5 Ensure all tools and materials required for patching are available and in good condition<br>1.6 Undertake an impact risk assessment, including customer impact risk and work health and safety (WHS) guidelines for the fibre patching requirements, and prepare any necessary notifications |
| 2. Prepare each connector and bulkhead for patching | 2.1 Place fibre patch leads in support pathways avoiding pressure points, crushing and excess bending<br>2.2 Identify appropriate connector and lead type<br>2.3 Ensure connectors match bulkhead connectors<br>2.4 Remove connector dust cover and inspect connecting surface for dust or damage using the correct optical scope<br>2.5 Clean connector, if necessary, with the recommended cleaning materials and tools and re-inspect<br>2.6 Insert connector and label in accordance with client practices<br>2.7 Secure cables according to manufacturer's instructions and client practices<br>2.8 Escalate any hardware replacement problems with the relevant authority<br>2.9 Test replacement hardware to ensure satisfactory functionality |
| 3. Clean up worksite and complete administrative work | 3.1 Remove waste and debris from worksite and dispose of according to environmental requirements<br>3.2 Recover faulty equipment and return to appropriate point for disposal or refurbishment<br>3.3 Complete documentation, update fault records and make recommendations according to client practices<br>3.4 Notify appropriate person at the relevant authority of job completion and obtain sign-off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 1.6, 2.7, 2.8, 3.3 | • Recognises and interprets technical, regulatory and enterprise documentation |
| Writing | 1.3, 1.6, 2.6, 3.3, 3.4 | • Uses clear, specific and industry related terminology to complete and update workplace documentation |
| Oral Communication | 1.3, 2.8, 3.4 | • Liaises with a range of personnel about technical and operational requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.1, 1.4, 1.5, 1.6, 2.6, 2.7, 3.2, 3.3 | • Complies with policies, procedures and legislative requirements relevant to own role |
| Interact with others | 1.3, 2.8, 3.4 | • Uses appropriate practices and protocols to communicate effectively with a range of personnel |
| Get the work done | 1.1, 1.2, 1.5, 1.6, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.3, 3.4 | • Plans, sequences and carries out tasks to meet required outcomes<br>• Implements actions according to a predetermined plan making adjustments if necessary<br>• Analyses task requirements to made routine decisions, taking some situational factors into account<br>• Anticipates potential problems and prepares contingency plans<br>• Follows required procedures when responding to problems<br>• Understands purpose and some specific functions of common digital tools used in work contexts |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN311 Inspect, clean and handle optical fibre cable | Not applicable | New unit to address industry skills need. | No equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| and connectors | | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN311 Inspect, clean and handle optical fibre cable and connectors

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.0. |

## Performance Evidence

Evidence of the ability to:

- interpret, discuss and confirm required work
- obtain and check documentation, equipment and hardware for required work
- complete an impact risk assessment
- inspect fibre connectors using inspection scopes
- clean connectors using approved methods
- handle optical fibre cable and connectors to prevent damage
- complete patching as per patching schedule and under the direction of the relevant authority
- follow work health and safety (WHS) requirements and anti-static precautions
- follow required practices or contingency plan if hardware replacement is unsuccessful
- update fault records and complete required documentation
- restore site to required condition
- liaise with appropriate personnel for information and reporting purposes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain application of direct current (DC) and alternating current (AC) electrical principles to required work
- describe static electricity and its importance in testing and working with telecommunications equipment
- outline performance testing and fault finding techniques of telecommunications networks
- describe the operation and purpose of testing equipment


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- describe behaviour of faulty network elements including symptoms and impact on network
- summarise common telecommunications hardware and network structures
- list types of power sources used in telecommunications networks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a suitable site to replace telecommunications network hardware
- a range of hardware currently used in industry
- a range of general and test equipment required for testing telecommunications network hardware.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN401 Identify requirements for customer telecommunications equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to pinpoint equipment and place cables within domestic, commercial or industrial installations, and includes planning access to existing infrastructure and completing all necessary documentation.

It applies to individuals working cablers and registered with an Australian Communications and Media Authority (ACMA) – accredited registrar.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to identify services required | 1.1 Contact customer to arrange access to site and identify customer equipment and discuss customer requirements<br>1.2 Assess site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.3 Confirm details of types and models of existing and proposed |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | customer equipment<br>1.4 Establish intended uses of customer's equipment to assist in identifying cabling requirements<br>1.5 Establish required cabling requirements with customer and make alternative recommendations<br>1.6 Locate existing facilities and systems including network facilities<br>1.7 Verify building construction by observation to confirm accessibility<br>1.8 Utilise existing floor plans where available and integrate into subsequent documentation<br>1.9 Notify customer where physical location may incur additional cost<br>1.10 Prepare a report on required services |
| 2. Establish availability of and access to existing cabling | 2.1 Calculate capacity of existing cabling against proposed usage to ensure appropriate decisions are taken on extent of new cabling required<br>2.2 Inspect cabling to ensure compliance with ACMA regulations, relevant legislation, codes, regulations and standards<br>2.3 Prepare a report on cabling infrastructure and equipment to meet customer requirements |
| 3. Complete required reports and documentation | 3.1 Complete all required documents promptly and accurately according to company policy<br>3.2 Obtain customer confirmation of documented requirements where required<br>3.3 Distribute relevant documentation promptly to required parties<br>3.4 Obtain sign-off from customer |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.2, 1.9, 3.1 | • Recognises and interprets technical documentation such as equipment manuals and specifications and other drawings to determine job requirements |
| Writing | 1.4, 1.5, 1.7, 1.9, 1.10, 2.3, 3.1, 3.2, 3.4 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation |
| Oral Communication | 1.1, 1.3, 1.5, 1.9, 3.2, 3.4 | • Uses listening and questioning skills to confirm understanding for requirements, participates in a verbal exchange of ideas and solutions, and uses appropriate, detailed and clear language to address key personnel and disseminate information |
| Numeracy | 1.9, 2.1 | • Uses mathematical formulae to measure equipment requirements and calculate equipment costs within budgetary constraints |
| Navigate the world of work | 1.2, 2.2, 3.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 3.3 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.4, 15, 1.6, 1.7 3.4 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Initiates standard procedures when responding to familiar equipment and logistics problems within immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN401 Identify requirements for | ICTTEN4001B Identify requirements for | Updated to meet Standards | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| customer telecommunications equipment | customer telecommunications equipment | for Training Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN401 Identify requirements for customer telecommunications equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- discuss and negotiate with customers their needs and expectations for customer equipment
- identify services required, and availability and access to existing cabling
- identify locations of equipment and placement of cables on support structures and building faces for both internal and external locations for service delivery
- complete required reports and documentation including order forms, services checklists and quotation forms.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain features and operating requirements of test equipment
- summarise legislation, codes of practice and other formal agreements that impact the work activity
- describe manufacturer’s requirements for safe operation of equipment
- explain specific work health and safety (WHS) requirements relating to the activity and site conditions
- describe the process of evaluating a customer premises to determine requirements
- outline typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which telecommunications installations can be conducted
- relevant databases, licensing requirements and other site- related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN402 Estimate and quote for customer telecommunications equipment installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to assess and estimate costs for all types of customer cabling needs.

It applies to individuals who undertake successful negotiations with customers and suppliers, and who update schematic drawings and specifications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm and update schematic drawings and specifications | 1.1 Obtain existing specifications and drawings and prepare additional or new schematic drawings and specifications for installation if required<br>1.2 Confirm all fittings, cable types and equipment locations with customer |
| 2. Price labour, materials and other relevant items | 2.1 Obtain quotations and delivery dates from suppliers to ensure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| and establish availability | fair comparisons across suppliers<br>2.2 Estimate labour costs based on company or industry labour rates and conditions<br>2.3 Check pricing documentation to ensure supply proposal matches customer specification for material, quality and performance |
| 3. Estimate labour, materials and other relevant item requirements | 3.1 Prepare estimations allowing for contingencies during installation and relevant legislation, codes, regulations and standards<br>3.2 Calculate costs using standard unit measures where relevant<br>3.3 Ensure estimates will return a profit on installation where appropriate |
| 4. Prepare and confirm quote with customer | 4.1 Prepare an equipment installation quote that meets customer requirements<br>4.2 Negotiate changes and variations to meet customer and company needs |
| 5. Establish customer's financial arrangements | 5.1 Obtain customer’s approval of purchase arrangements and method of payment<br>5.2 Complete finance company negotiations successfully, where required, and obtain customer’s agreement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.3 | • Recognises and interprets technical documentation such as equipment manuals and specifications and other drawings to determine job requirements |
| Writing | 1.1, 1.2, 3.1, 4.1, 4.2, 5.1, 5.2 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation |
| Oral Communication | 1.2, 4.2, 5.1, 5.2 | • Participates in an oral exchange with customers and suppliers, requiring some negotiation and liaison on technical and operational matters |
| Numeracy | 2.2, 3.1-3.3 | • Uses mathematical formulae to measure equipment |


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| | | |
|---|---|---|
| | | requirements and accurately calculate equipment costs |
| Navigate the world of work | 3.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Get the work done | 1.1, 2.1, 5.2 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks in a safe manner<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, and identifying and taking some situational factors into account<br>• Initiates standard procedures when responding to familiar equipment and logistics problems within immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN402 Estimate and quote for customer telecommunications equipment installation | ICTTEN4003B Estimate and quote for customer telecommunications equipment installation | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN402 Estimate and quote for customer telecommunications equipment installation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine customer equipment requirements
- prepare detailed estimates, updated schematic drawings and specifications, including material and labour costs for telecommunications equipment installations
- negotiate with contractors on material availability and pricing for customer equipment installations
- complete detailed quotes for installations that allow for variations
- negotiate and confirm variations to quote and financial arrangements with customer.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe features of customer telecommunications equipment
- outline legislation, codes of practice and other formal agreements that impact the work activity
- explain processes and techniques required to prepare plans, estimate and quote for installations
- describe specific work health and safety (WHS) issues that may impact a quotation for customer equipment installation
- outline typical issues and challenges that occur when negotiating with customers.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which estimates and quotes may be conducted
- relevant databases, licensing requirements and other site- related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN403 Assign a transmission path

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to allocate channel capacity to a customer or customer group based on details provided in a service request.

It applies to individuals working as technical officers or engineers for private and public organisations. They combine technical skills with organisational skills to assess customer requirements and allocate a transmission medium to provide access to the customer.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Collect data to evaluate capability of transmission path | 1.1 Determine service details from service request<br>1.2 Use transmission medium plans to locate customer position relative to the access network provisioning<br>1.3 Evaluate existing transmission mediums in close proximity to assess their capability to deliver service to customer<br>1.4 Specify equipment to be used on the service from service request |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Specify line interface type to be used, according to enterprise guidelines |
| 2. Allocate transmission medium for service | 2.1 Select appropriate transmission medium to deliver service to customer's premises<br>2.2 Record information about transmission medium between customer's premises and exchange or network terminal point<br>2.3 Verify service delivery point interface at exchange or network terminal point is compatible with required system<br>2.4 Conduct appropriate allocation process to assign new services and send completed allocation information to appropriate field staff to verify physical allocation before providing service |
| 3. Maintain transmission medium records | 3.1 Advise relevant personnel of impending bearer shortages to facilitate future planning allocation<br>3.2 Update plans and databases to record all details |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.5 | • Recognises and interprets technical documentation to determine job requirements |
| Writing | 1.4, 1.5, 2.2, 2.3, 3.1, 3.2 | • Uses clear, specific and industry-related terminology to record and notate workplace documentation |
| Oral Communication | 1.4, 1.5, 2.3, 3.1 | • Uses listening and questioning skills to confirm understanding of requirements and participates in a verbal exchange with technical staff, subject matter experts and manufacturers<br>• Uses appropriate, detailed and clear language to address key personnel and disseminate information |
| Numeracy | 2.4 | • Makes calculations to determine capacity requirements |
| Interact with others | 2.4 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and |


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| | | |
|---|---|---|
| | | audience |
| Get the work done | 1.3, 2.4, 3.2 | • Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Understands purpose and specific functions of common digital tools used in work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN403 Assign a transmission path | ICTTEN4040A Assign a transmission path | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN403 Assign a transmission path

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- assess transmission needs for a transmission path according to service request
- select suitable equipment to provide new services
- communicate effectively with stakeholders to meet customer needs
- assess future needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- review common customer telecommunications applications and related equipment
- investigate core networks using emerging and converging technologies
- explain current legislation relating to installation of telecommunications equipment and connection to carrier services
- evaluate customer access options and their technical support systems
- describe multiplexing principles and transmission hierarchies
- summarise network and transmission equipment
- outline network topologies, interfaces and interconnect solutions.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites where transmission paths can be allocated


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- a computer networking facility
- relevant regulatory and equipment documentation
- equipment currently used in industry.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN404 Install and configure a wireless mesh network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to connect and test wireless networking equipment or radio communications equipment.

It applies to individuals working as technicians and technical officers for private and public organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Configure wireless mesh nodes and wireless access points | 1.1 Determine internet protocol (IP) addressing schemes from design plan, obtained from appropriate personnel<br>1.2 Confirm compatibility of factory installed firmware in wireless routers with mesh routing requirements – otherwise install upgrade firmware<br>1.3 Configure wireless router settings and wireless fidelity (WiFi) for wireless access point settings for inclusion in mesh network<br>1.4 Connect mesh node and access node back-to-back via a straight |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | LAN cable according to design plan |
| 2. Connect separate mesh networks via backbone | 2.1 Configure routing software on mesh and backbone nodes to enable mesh traffic to reach backbone<br>2.2 Connect mesh node and backbone node back-to-back via a straight LAN cable<br>2.3 Configure gateway server and gateway node and add required services to network |
| 3. Test connectivity within mesh network | 3.1 Assemble all wireless mesh routers with configuration sheets attached, and power up routers<br>3.2 Connect PC to a wireless mesh router and confirm an IP address is provided automatically by dynamic host configuration protocol (DHCP)<br>3.3 Confirm connectivity to mesh nodes and the gateway by pinging individual IP addresses, and rectify faulty nodes if required |
| 4. Test network connectivity via wireless backbone | 4.1 Install mesh nodes according to design plan<br>4.2 Install and align directional antennas on wireless backbone path according to installation instructions and work health and safety (WHS) procedures<br>4.3 Confirm connectivity between mesh clusters at either end of wireless backbone |
| 5. Clean up worksite and complete administrative work | 5.1 Remove waste from worksite, dispose of according to environmental requirements and restore work area to customer's satisfaction<br>5.2 Update documentation records and make recommendations according to enterprise policy<br>5.3 Notify customer of job completion and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 4.2, 5.2 | • Recognises and interprets technical documentation to |


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| | | |
|---|---|---|
| | | determine job requirements |
| Writing | 5.2, 5.3 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation in predetermined formats |
| Numeracy | 1.3, 2.3 | • Performs calculations to interpret results and evaluate different types of technical data and configure system performance |
| Navigate the world of work | 4.2, 5.1, 5.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context |
| Interact with others | 1.1, 5.3 | • Selects appropriate form, channel and mode of communication when liaising with customers, vendors and installation personnel on technical and operational matters |
| Get the work done | 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3 | • Understands key principles and concepts underpinning design and operation of digital systems and tools and applies these when troubleshooting existing technology and when seeking to understand the potential of new technology<br>• Determines job priorities, resources and equipment, and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking situational factors into account<br>• When dealing with complex issues, may use intuition to identify problems, switching to analytical processes to modify activities depending on operational contingencies, risk situations and environments to generate possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN404Install and configure a wireless mesh | ICTTEN4050A Install and configure a | Updated to meet Standards | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| network | wireless mesh network | for Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN404 Install and configure a wireless mesh network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- configure wireless mesh nodes
- install wireless mesh nodes, access point nodes and gateway
- test nodes for connectivity.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain requirements for 802.11 wireless protocols
- describe allocation of internet protocol (IP) addresses and subnet masks
- summarise antenna gain and polarisation
- outline cable loss
- explain calculation of effective isotropic radiated power (EIRP)
- explain calculation of line of site radio range
- explain decibels and related units
- outline network topologies
- describe radio frequency (RF) bands
- summarise routing protocols
- outline transmission control protocols(TCP)-IP describe wireless networking hardware, access points, wireless routers and gateway.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which configuring and installing wireless mesh network may be conducted
- technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN405 Install configuration programs on PC based customer equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to install software on customer equipment, including digital home integration, security, voice over IP (VoIP), internet protocol television (IPTV), radio frequency identification (RFID), wireless networking and home automation.

It applies to individuals working as field officers, technicians or technical supervisors for telecommunications carriers, contractors or other service providers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install software | 1.1 Arrange site access according to required procedure<br>1.2 Determine the type of customer equipment from the installation plan to prepare software requirements to provide required functionality<br>1.3 Prepare equipment software configuration specifications to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | include enhancements in customer requirements and confirm with customer<br>1.4 Notify customers of proposed software installation<br>1.5 Confirm software compatibility with existing system if required<br>1.6 Document job software specification |
| 2. Install program and provide secure remote access | 2.1 Configure customer specific data according to system specifications<br>2.2 Install and test system functionality to verify system operational performance following work health and safety (WHS) regulations, manufacturer's specifications and industry standards<br>2.3 Develop and configure security arrangements and codes for remote access systems in consultation with customer<br>2.4 Conduct tests to validate security arrangements |
| 3. Undertake administrative tasks | 3.1 Save and record configuration program and provide program back-up for contingency use by customer<br>3.2 Complete administrative tasks and provide a copy of job specification to be securely stored on site following enterprise policy<br>3.3 Notify customer of job completion and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 3.2 | • Recognises and interprets technical and enterprise policy documentation to determine job requirements |
| Writing | 1.3, 1.4, 1.6, 2.3, 3.2, 3.3 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation |
| Oral Communication | 1.3, 1.4, 3.3 | • Participates in an oral exchange with customers and technical staff on technical and operational matters |
| Numeracy | 1.3 | • Uses mathematical formulae to make calculations and take readings for necessary configuration changes |


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| | | |
|---|---|---|
| Navigate the world of work | 2.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context |
| Interact with others | 1.3, 2.3 | • Selects and uses appropriate conventions and protocols when communicating with customers in a range of work contexts |
| Get the work done | 1.1-1.3, 1.5, 1.6, 2.2-2.4, 3.1, 3.2 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these when troubleshooting existing technology and when seeking to understand the potential of new technology<br>• Determines job priorities, resources and equipment, and works logically and systematically to arrange site access and arrange equipment deliveries<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• When dealing with complex issues, may use intuition to identify problems, switching to analytical processes to modify activities depending on operational contingencies |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN405 Install configuration programs on PC based customer equipment | ICTTEN4051A Install configuration programs on PC based customer equipment | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

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# Assessment Requirements for ICTTEN405 Install configuration programs on PC based customer equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- prepare software configuration
- load software into customer equipment
- install security programs agreed with customer
- test program and program features including:
  - system facilities
  - product features
  - required peripherals associated with the product
  - system functionality
- notify customer of progress and obtain sign off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- define channel allocations
- outline common operating systems and their impact on the configuration of, or version of software to be installed
- explain internet protocol (IP) addressing
- describe logon procedures
- outline numbering formats
- describe product or service functions to ensure correct operation of completed installation
- explain relevant regulatory and industry requirements.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a suitable site for installation of system programs
- equipment currently used in industry
- relevant regulatory and enterprise documentation impacting testing and installation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN406 Effect changes to existing customer premises equipment systems and equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to effect changes to existing customer premises' equipment (CPE), systems and products, through producing plans, carrying out alterations and testing new work.

It applies to individuals who may be working as linespeople, line installers and technicians for telecommunications carriers, contractors, other service providers or private providers who upgrade or modify customer equipment and systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare requirements for alteration | 1.1 Arrange site access according to required procedure and comply with site security arrangements and relevant legislation, codes, regulations and standards<br>1.2 Assess facilities and capacity to ensure requirements can be met<br>1.3 Evaluate existing system availability and access to accommodate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | proposed changes<br>1.4 Notify appropriate personnel of identified safety hazards at worksite<br>1.5 Evaluate compatibility of existing and proposed systems and equipment before proceeding with planned changes<br>1.6 Negotiate planned system outages and outage time with the customer |
| 2. Document specifications and plans for alteration | 2.1 Produce an amendment plan of systems alterations to assess suitability with existing system<br>2.2 Produce specifications for alteration requirements according to customer requirements<br>2.3 Select materials and tools and equipment compatible with upgrade activity |
| 3. Install additional equipment and program system feature changes | 3.1 Produce an activity plan for minimal disruption of alterations to ongoing client activity<br>3.2 Carry out all alterations in a safe manner according to relevant standards and regulations and manufacturer's specifications<br>3.3 Test new work in isolation and when integrated with existing systems to confirm compatibility of alterations with existing network |
| 4. Update plans and records | 4.1 Update all plans and documents to show installed systems accurately and clearly<br>4.2 Complete documentation for customer support |
| 5. Restore site to required condition | 5.1 Remove waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions<br>5.2 Recover obsolete equipment and return to customer or disposal of as agreed with customer<br>5.3 Notify customer of job completion and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 2.1, 2.2, 3.1, 4.1, 4.2, 5.3 | • Completes workplace documentation accurately using appropriate form and vocabulary for intended audience |
| Oral Communication | 1.4, 5.3 | • Conveys specific messages efficiently and uses an appropriate tone and vocabulary for intended audience |
| Navigate the world of work | 1.1, 3.2, 5.1, 5.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context |
| Interact with others | 1.4, 1.6, 5.2 | • Selects appropriate form, channel and mode of communication when liaising with customers and personnel on technical and operational matters |
| Get the work done | 1.1, 1.3, 1.5, 2.1, 2.2, 3.1, 3.3 | • Prioritises and plans work to meet deadlines and client expectations<br>• Uses digital technologies and systems to complete required tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN406 Effect changes to existing customer premises equipment systems and equipment | ICTTEN4072A Effect changes to existing customer premises equipment systems and equipment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN406 Effect changes to existing customer premises equipment systems and equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify customer's needs
- develop plans and drawings to give effect to planned changes to systems and equipment
- alter system and equipment including physical and programming change according to work health and safety (WHS) regulations and relevant standards
- identify, conduct and interpret tests appropriate to the change
- notify customer and relevant personnel of progress.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline legislation, codes of practice and other formal agreements that impact changes to customer equipment and systems
- identify manufacturer's requirements for safe operation of equipment
- define network addressing
- consider specific WHS requirements relating to customer premises' equipment
- establish types of customer premises' equipment (CPE) that may require upgrade
- describe typical issues and challenges that occur on site
- identify vendor products.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications network engineering field of work and include access to:

- systems and equipment to effect changes
- appropriate manuals and specifications
- relevant enterprise policies.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN407 Cut over customer premises equipment major upgrades

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to cut over major equipment and network upgrades in customer premises, and test and rectify problems.

It applies to individuals working at a supervisory level who may be in charge of installation and maintenance teams responsible for new installations and upgrades of telecommunications customer premises equipment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for cut over | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Notify customer for site access, security arrangements and location details of customer equipment for major upgrade<br>1.3 Identify site hazards and notify appropriate personnel to make site safe |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Prepare cut over plan and seek approval from customer<br>1.5 Complete functional testing of new systems and equipment prior to cut over to minimise system downtime<br>1.6 Notify network carrier of cut over details to prevent unnecessary alarm call-outs and reports<br>1.7 Organise system back-up with support personnel |
| 2. Cut over system and equipment into service | 2.1 Conduct cut over works for major system upgrade according to cut over plan with minimal disruption to customer service according to work health and safety (WHS) and environmental requirements<br>2.2 Conduct tests according to technical manuals and specifications to complete installation task<br>2.3 Analyse test results to verify system compatibility and interoperability with existing system<br>2.4 Rectify any problems, if required |
| 3. Finalise work and clean up worksite | 3.1 Complete documentation containing installation details and test records<br>3.2 Amend site records to show existing equipment layout<br>3.3 Organise customer training in the new or modified system<br>3.4 Clean up and restore site to customer satisfaction<br>3.5 Collect and dispose of waste material and debris according to environmental requirements<br>3.6 Notify customer of job completion to obtain sign-off and present with a copy of documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 1.4, 3.1, 3.2, 3.6 | • Completes workplace documentation accurately using appropriate form and vocabulary for intended audience |
| Oral Communication | 1.2, 1.3, 1.6, 3.6 | • Conveys specific messages efficiently and uses an appropriate tone and vocabulary for intended audience |


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| | | |
|---|---|---|
| Numeracy | 2.3 | • Interprets numerical information to assist decision-making |
| Navigate the world of work | 1.1-1.3, 2.1, 2.2, 3.4, 3.5 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context |
| Interact with others | 1.4, 1.7, 3.3 | • Selects appropriate form, channel and mode of communication when liaising with customers and personnel on technical and operational matters |
| Get the work done | 1.4, 1.5, 1.7, 2.1, 2.2, 2.4, 3.3 | • Considers a range of complex factors when planning and completing tasks to ensure work is completed accurately and safely<br>• Applies problem-solving processes to determine solutions for less predictable problems<br>• Recognises and anticipates a range of problems, actively looking for early warning signs and implementing contingency plans when appropriate<br>• Uses digital technologies and systems to complete required tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN407 Cut over customer premises equipment major upgrades | ICTTEN4073A Cut over customer premises equipment major upgrades | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN407 Cut over customer premises equipment major upgrades

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- develop and implement an effective cut over plan
- identify and organise resources including customer resources and access as necessary to complete cut over
- conduct cut over and relevant tests according to work health and safety (WHS) and environmental requirements
- interpret test results to identify and resolve problems
- finalise administrative tasks and initiate training.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline cut over procedures
- define customer premises' equipment CPE
- illustrate features and operating requirements of test equipment
- outline information required to operate equipment according to a test specification
- outline legislation, codes of practice and other formal agreements that impact the work activity
- explain manufacturer's requirements for safe operation of equipment
- describe specific work health and safety (WHS) requirements relating to activity and site conditions
- explain test methods and performance requirements
- describe typical issues and challenges that occur on site.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications network engineering field of work and include access to:

- a site where cut over can be conducted
- plant, tools and equipment currently used in the industry
- relevant regulatory and equipment documentation impacting work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN408 Complete equipment and software upgrades

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to upgrade telecommunications equipment and software in service provider networks and customer premises, and may apply to switching, transmission, radio, and computer networks using cable, optical fibre, radio, microwave and satellite transmission.

It applies to individuals who supervise installation and maintenance teams involved in new installations or maintenance, upgrades and cut overs of emerging technologies in IP-based telecommunications networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for upgrade activity | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Contact customer for site access, security arrangements and location details of equipment for upgrade<br>1.3 Identify site hazards and notify appropriate personnel to make |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | site safe<br>1.4 Prepare an upgrade plan against work order and seek approval from customer<br>1.5 Organise system back-up from support personnel<br>1.6 Obtain tools and test equipment and check for accuracy and safety<br>1.7 Allocate specific tasks according to the skill mix of staff involved<br>1.8 Run test plan on current equipment and identify and rectify problems in consultation with planners<br>1.9 Complete functional testing of new systems and equipment prior to upgrade to minimise system downtime<br>1.10 Analyse test results to predict compatibility and interoperability issues of equipment and systems prior to the upgrade work |
| 2. Undertake upgrade | 2.1 Implement upgrade according to design specification, following work health and safety (WHS) and environmental requirements<br>2.2 Follow procedures for upgrade of network in sequential order as defined in instruction manuals<br>2.3 Monitor progress of upgrade periodically to ensure plans in relation to time and duration are being met<br>2.4 Notify planner of problems encountered with detail of the impact on the upgrade plan<br>2.5 Abort upgrade and implement contingency plan if upgrade plan cannot be realised without major disruption to network<br>2.6 Monitor system response during upgrade and take action according to instructions provided |
| 3. Test upgrade for acceptance | 3.1 Undertake tests according to predetermined test plan<br>3.2 Analyse test results and verify against specified performance levels<br>3.3 Escalate problems encountered according to enterprise policy<br>3.4 Invoke reversion procedure to pre-upgrade state, if directed by planners, according to enterprise policy<br>3.5 Record upgrade test results and provide to network management group<br>3.6 Run post-upgrade routines according to documented |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | procedures |
| 4. Monitor post-upgrade performance | 4.1 Conduct ongoing tests to ensure success of upgrade<br>4.2 Monitor relevant alarms to measure impact of upgrade<br>4.3 Review customer complaints to assess impact of upgrade on customer satisfaction |
| 5. Finalise administrative work and clean up worksite | 5.1 Complete relevant work documentation and administrative tasks according to enterprise policy<br>5.2 Amend site records to show upgraded equipment layout<br>5.3 Organise customer training in the new or modified system<br>5.4 Clean up and restore site to customer satisfaction<br>5.5 Collect and dispose of waste material and debris according to environmental requirements<br>5.6 Declare asset ready for use<br>5.7 Notify customer of upgrade job completion to obtain sign-off of work order and present with a copy of documentation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.2, 2.6, 4.3 | • Interprets and analyses complex technical information |
| Writing | 1.4, 3.5, 5.1, 5.2, 5.7 | • Employs appropriate vocabulary and tone to convey specific information to different audiences |
| Oral Communication | 1.2, 2.4, 5.7 | • Conveys specific messages efficiently and uses an appropriate tone and vocabulary for intended audience |
| Numeracy | 1.10, 3.2, 3.5 | • Performs calculations to analyse data and records results in required format |
| Navigate the world of work | 1.1-1.3, 1.5, 1.6, 2.1, 2.2, 3.3, 3.4, 3.6, 5.1, 5.4, 5.5 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context |
| Interact with | 1.4, 1.5, 1.7, 1.8, | • Selects appropriate form, channel and mode of |


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| | | |
|---|---|---|
| others | 2.4, 5.4 | communication when liaising with customers and personnel on technical and operational matters |
| Get the work done | 1.7-1.10, 2.3, 2.5, 2.6, 3.1-3.6, 4.1, 4.2, 5.3, 5.6 | • Organises, plans and sequences own workload and schedules work activities of others<br>• Applies problem-solving processes and reviews impact to ensure solutions or contingency plans are effective<br>• Uses digital technologies and systems to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN408 Complete equipment and software upgrades | ICTTEN4076A Complete equipment and software upgrades | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN408 Complete equipment and software upgrades

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- analyse implications of hardware and software upgrade on remainder of the network
- identify components of the upgrade process
- prepare an upgrade plan and organise system back-up
- run test plan and analyse test results
- implement upgrade according to work health and safety requirements
- monitor progress of upgrade periodically using both vendor- and enterprise-specific monitoring tools
- implement contingency plan when required, and analyse alarms and alarm conditions
- escalate unresolved problems and review customer complaints to assess impact of upgrade
- make necessary arrangements with the customer for site access and training.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain alarms used to monitor operation of computer software systems
- explain use of back-up systems
- illustrate common upgrades and post-upgrade routines
- describe escalation and outage procedures
- investigate network management systems
- outline telecommunications networks and equipment
- identify telecommunications monitoring tools
- describe telecommunications test equipment and test set-ups
- describe telecommunications wiring practices.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where upgrade may be conducted
- equipment, software, test and monitoring equipment currently used in industry
- relevant regulatory, equipment, enterprise and vendor documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN409 Commission an electronic system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to commission an electronic system with applications, including cellular telemetry, voice over IP (VoIP), radio frequency identification (RFID), supervisory control and data acquisition (SCADA) networks and SCADA security, telephony, data, video, IP television (IPTV) and multimedia.

It applies to individuals who may work as field officers and technicians employed by telecommunications carriers, service providers or contractors.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to commission electronic system | 1.1 Prepare for work following work health and safety (WHS) requirements<br>1.2 Organise resources based on existing and potential site hazards<br>1.3 Contact customer or network operations personnel for site access and network specifications<br>1.4 Determine function and requirements of electronic system from |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | specifications<br>1.5 Identify potential security threats and vulnerability where remote monitoring and control via public telecommunications network or internet are used, and report to appropriate personnel<br>1.6 Verify installed electronic system and associated cabling conform to specifications, and assess compatibility of system units<br>1.7 Establish commissioning dates with all parties and establish planned outage<br>1.8 Check suitability and calibration status of test equipment<br>1.9 Produce a preliminary commissioning plan according to manufacturer's instructions and enterprise guidelines for discussion with the customer |
| 2. Organise planned outages | 2.1 Negotiate outage times with appropriate groups and affected customers to minimise disruptions<br>2.2 Arrange for emergency communications based on contingency plans<br>2.3 Notify alarm management centre of planned action<br>2.4 Obtain authority to proceed from relevant control centre and notify customers affected by the outage |
| 3. Perform commissioning procedures | 3.1 Configure electronic system parameters and install software according to manufacturer’s specifications and customer requirements<br>3.2 Conduct tests according to manufacturer’s specifications and industry practice<br>3.3 Conduct cut over according to project design and industry practice in consultation with appropriate personnel<br>3.4 Conduct a security audit, including remote threat analysis in applications where the public telecommunications network or internet is linked to the overall electronic system |
| 4. Finalise commissioning | 4.1 Record configuration information and update relevant databases according to enterprise and network guidelines<br>4.2 Notify appropriate person of commissioning results and work completion<br>4.3 Complete administrative tasks according to industry practice and enterprise guidelines |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4 | • Interprets complex information to determine job requirements |
| Writing | 1.9, 4.1 | • Completes technical workplace documentation using vocabulary and form appropriate to intended audience |
| Navigate the world of work | 1.1, 1.5-1.7, 4.1, 4.3 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context |
| Interact with others | 1.3, 1.5, 1.6, 2.1, 2.3, 2.4, 4.2 | • Collaborates and negotiates with others to achieve specific goals<br>• Selects appropriate form, channel and mode of communication when liaising with customers and personnel on technical and operational matters |
| Get the work done | 1.2, 1.4, 1.7, 1.8, 1.9, 2.2, 3.1-3.4 | • Considers a range of complex factors when completing set tasks to ensure work is completed accurately and safely<br>• Recognises and anticipates a range of problems, actively looking for early warning signs and implementing contingency plans when appropriate<br>• Uses digital technologies and systems to complete required tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN409 Commission an electronic system | ICTTEN4078A Commission an electronic system | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN409 Commission an electronic system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- effectively negotiate arrangements for commissioning
- accurately configure electronic equipment and system parameters
- commission electronic system according to specifications and following work health and safety (WHS) requirements
- deal with faults and problems and provide solutions
- identify potential security threats and vulnerability.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain acceptance testing
- formulate a commissioning procedure and commissioning tests for an electronic system
- identify electrical and optical properties to be measured
- evaluate an extensive range of networking equipment
- outline legislation and licensing associated with installation of telecommunications equipment
- outline network operation procedures
- explain power requirements and electrical safety
- explain setup and operation of test equipment applicable to a wide range of measurements
- outline transmission type and signals that may be encountered.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which installation and commissioning procedures may be conducted
- relevant regulatory and equipment documentation
- testing equipment currently used in industry.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN410 Locate, diagnose and rectify faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to locate, diagnose and rectify faults in telecommunications networks.

It applies to individuals who may work as telecommunications officers, communications cablers, or installers of customer premises' equipment, for optical and radio frequency (RF) equipment, multimedia and IP networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to locate and rectify fault | 1.1 Prepare for given work according to relevant legislation, work health and safety (WHS) regulations, codes, standards and identified hazards<br>1.2 Arrange site access according to required procedure<br>1.3 Obtain information on the nature of fault from the customer<br>1.4 Obtain suitable testing tools and equipment and specify personal |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | protective equipment<br>1.5 Conduct fault-finding using methodical and safe practices suitable for system and problem type |
| 2. Locate and diagnose fault | 2.1 Conduct appropriate test to identify type of fault<br>2.2 Isolate fault progressively to remove likely variables from assessment<br>2.3 Locate fault without undue interruptions to customer activity, in the shortest possible time<br>2.4 Notify customer of findings |
| 3. Rectify fault | 3.1 Determine options to rectify fault, and present options to customer<br>3.2 Advise customer of costs of any repair not covered by service agreement<br>3.3 Rectify fault if in agreement with client<br>3.4 Conduct work in a manner which is safe for repairer and customer<br>3.5 Refer any unresolved faults to other parties for resolution or escalation if required |
| 4. Complete documentation and clean up worksite | 4.1 Advise customer of successful fault clearance and secure sign-off<br>4.2 Complete all records<br>4.3 Complete reports to justify fault diagnosis and rectification methodology, if required<br>4.4 Remove all waste and debris from worksite and dispose of them according to environmental requirements<br>4.5 Restore any changes made to worksite during fault repair to the customers satisfaction |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Writing | 4.1, 4.2, 4.3 | • Completes technical workplace documentation using appropriate language and form to meet specific purpose |
| Oral Communication | 1.3, 2.4, 3.2 | • Articulates specific requirements clearly and checks understanding<br>• Uses questioning and active listening to obtain required information |
| Numeracy | 2.1 | • Interprets numerical data from network tests |
| Navigate the world of work | 1.1, 1.2, 3.4, 4.4, 4.5 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context |
| Interact with others | 1.3, 3.1, 3.3, 3.5, 4.1 | • Selects appropriate form, channel and mode of communication when liaising with customers and personnel on technical and operational matters |
| Get the work done | 1.2, 1.4, 1.5, 2.1, 2.2, 2.3, 3.1, 3.3 | • Plans and implements tasks in line with organisational expectations, legislative requirements and work role<br>• Recognises and anticipates a range of problems, actively looking for early warning signs and implementing contingency plans when appropriate<br>• Uses digital technologies and systems to complete required tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN401 Locate, diagnose and rectify faults | ICTTEN4081A Locate, diagnose and rectify faults | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN410 Locate, diagnose and rectify faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- effectively identify different faults
- establish context and background information, and determine and rank likely causes of fault
- obtain suitable tools and equipment and apply simple checks, tests and fault-finding methodology
- apply recommended means to rectify fault
- comply with all related work health and safety (WHS) requirements and work practices
- ensure customer and relevant personnel are informed of progress.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate various fault-finding techniques for different networking situations
- specify and evaluate test equipment used for fault finding
- specify safety standards required when testing different types of systems
- outline common network faults and their rectification
- explain the value of specific regulatory and other documentation required when testing and reporting on test results.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- an appropriate site
- test and related equipment currently used in industry
- relevant technical specifications and requirements
- regulatory and site-related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN411 Monitor, analyse and action telecommunications network alarms

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to diagnose problems, restore a network, normalise an alarm system and examine the impact on a network.

It applies to individuals who are proficient communicators, excellent trouble-shooters and who have a clear understanding of network alarm systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan response to network alarm | 1.1 Determine alarm severity and specific network elements affected from presentation of alarm<br>1.2 Assess likely impact to client and network of the alarm<br>1.3 Notify the network operating centre (NOC) and other relevant parties of alarm condition<br>1.4 Prioritise actioning of alarms according to existing service level |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | agreement obligations and enterprise policy<br>1.5 Assess impact of any outage issues and major customers affected<br>1.6 Provide information to and seek advice from other relevant parties in identifying the problem and cause of the alarm condition<br>1.7 Diagnose likely cause of alarm condition using established methodical strategies<br>1.8 Escalate diagnosis to higher level fault clearance unit according to enterprise policy where necessary |
| 2. Arrange rectification of network problem | 2.1 Implement enterprise policy relating to outages as required<br>2.2 Rectify network problems when appropriate capability and time constraints can be met<br>2.3 Enact escalation procedures according to enterprise policy<br>2.4 Make all alarm data and diagnosis available to other areas with responsibility and jurisdiction for network restoration<br>2.5 Provide clear and concise instructions to field staff to facilitate all repair efforts<br>2.6 Monitor progress of the network repair effort<br>2.7 Apply enterprise policy in relation to alarms requiring no further action |
| 3. Complete alarm clearance tasks | 3.1 Reset alarms following network restoration<br>3.2 Notify all relevant parties of problem rectification<br>3.3 Undertake appropriate cause and effect studies to prevent re-occurrence of problem<br>3.4 Complete administrative tasks and recommend any changes required by the enterprise quality assurance system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 1.8, 2.1, 2.3, | • Recognises and interprets complex technical data and procedures to determine job requirements |


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| | | |
|---|---|---|
| | 2.7, 3.4 | |
| Writing | 1.3, 2.5, 3.2, 3.4 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation |
| Oral Communication | 1.3, 2.5, 3.2 | • Articulates requirements clearly and concisely to provide advice and guidance to others and to liaise with technical personnel working across different levels and in different contexts<br>• Uses well-developed listening and questioning techniques to confirm understanding |
| Numeracy | 1.1 | • Uses mathematical formulae to interpret numerical data |
| Interact with others | 1.6, 2.4 | • Actively identifies requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 1.7, 1.8, 2.1, 2.2, 2.6, 3.1, 3.3, 3.4 | • Understands key principles and concepts underpinning the design and operation of digital systems and tools, and applies these when troubleshooting existing technology and when seeking to understand the potential of new technology<br>• Works logically and systematically to monitor, analyse and action job priorities<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options and seeking input and advice from others when necessary |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN411 Monitor, analyse and action telecommunication | ICTTEN4085A Monitor, analyse and action telecommunication | Updated to meet Standards for Training | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| s network alarms | s network alarms | Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN411 Monitor, analyse and action telecommunications network alarms

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- monitor and analyse a range of network alarms including use of fault history and ranking of likely causes
- ensure customers and relevant personnel are appropriately notified of network status
- undertake and monitor network repairs
- plan and coordinate actioning of network alarms.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- define purpose of escalation policies and procedures for network alarm systems
- describe installed telecommunications systems and equipment
- explain principles and use of path protection
- outline key components of a telecommunications network
- evaluate commonly used test equipment and test procedures
- outline typical problems and challenges that arise in Network Operations Centres (NOCs) and in the field
- describe typical systems and procedures for monitoring alarms.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:


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- sites on which local and remote monitoring and analysis of network alarms may be conducted
- manufacturer's technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN412 Undertake routine maintenance of the telecommunications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to perform routine maintenance of network plant and equipment in various telecommunications switching and transmission environments, including wide area networks (WAN), virtual private networks (VPN) and core networks, using wireless, optical, broadband and Next Generation Networking (NGN) technologies.

It applies to individuals working as field officers or technicians from carriers, contractors and other service providers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan routine maintenance | 1.1 Obtain relevant legislation, codes, regulations and standards for the given work<br>1.2 Determine network elements requiring maintenance, and maintenance details from manufacturer's equipment manual |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Notify the Network Operations Centre (NOC) of proposed maintenance schedule and maintenance details to minimise disruption to the network<br>1.4 Assess potential impact of proposed maintenance on customers and network, and plan for possible outage or deferral of maintenance<br>1.5 Obtain necessary tools, test equipment and resources to undertake maintenance<br>1.6 Produce a written schedule of planned routine maintenance<br>1.7 Negotiate schedules and access with the customer, and find out where equipment to be maintained is located on customer premises<br>1.8 Ascertain and record network stability to determine network performance |
| 2. Undertake planned maintenance | 2.1 Conduct routine maintenance tasks following work health and safety (WHS) and environmental requirements, and record results<br>2.2 Escalate unresolved faults according to established enterprise procedure<br>2.3 Test network equipment for required performance following routine maintenance<br>2.4 Check operation of associated network equipment to ensure the maintenance did not generate other faults or alarms |
| 3. Report on routine maintenance and document results | 3.1 Notify all relevant parties of results of the routine maintenance<br>3.2 Update routine maintenance logs and record other additional work for inclusion in the next cycle of maintenance<br>3.3 Complete administrative tasks and recommend any changes as required by the enterprise quality assurance system<br>3.4 Notify NOC of job completion and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.2, 3.3 | • Recognises and interprets plans, specifications, complex technical data and procedures to determine |


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| | | |
|---|---|---|
| | | job requirements |
| Writing | 1.3, 1.6-1.8, 2.1, 3.1-3.4 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation |
| Oral Communication | 1.3, 1.7, 3.1, 3.4 | • Articulates requirements clearly and concisely to provide advice and guidance to others and to liaise with technical personnel working across different levels and in different contexts<br>• Uses well-developed listening and questioning techniques to confirm understanding |
| Navigate the world of work | 2.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements relevant to own work context, identifying improvement opportunities where appropriate |
| Interact with others | 1.3, 1.7 | • Selects and uses appropriate conventions and protocols when communicating with customers and technical staff in a range of work contexts |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 1.8, 2.2-2.4 | • Formulates plans and implements actions according to plan, making adjustments if necessary<br>• Works logically and systematically to monitor, analyse and action job priorities<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options and seeking input and advice from others when necessary<br>• Uses digital technologies and systems to install software, and for data entry and storage |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN412 Undertake routine maintenance of the telecommunications network | ICTTEN4086A Undertake routine maintenance of the telecommunications network | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN412 Undertake routine maintenance of the telecommunications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan a detailed routine maintenance schedule
- conduct and record routine maintenance activities procedures and techniques
- test network equipment and analyse results
- carry out works in compliance with site risk controls, work health and safety (WHS), environmental, quality and communication requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe computer systems required to facilitate a routine maintenance check of a telecommunications network
- explain the operation of network alarm systems
- describe the function and purpose of network management systems
- outline key components of a telecommunications network equipment and architecture, and their function including:
  - switching
  - mobile communications
  - satellite
  - transmission
  - antennas
  - radio frequency
  - basic telephony


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- identify and specify telecommunications test equipment, test configurations, and analysis of results for a range of telecommunications network problems
- describe WHS risks associated with routine maintenance tasks
- explain telecommunications wiring practices
- explain the use of a scheduler
- describe the importance of customer relations when dealing with clients, in particular, obligations and expectations of the technician
- describe the operation, application and characteristics of digital logic integrated circuits and installation packages
- outline the importance of enterprise policies and procedures for:
  - escalation of issues
  - enterprise information systems

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which routine maintenance may be conducted
- maintenance tools and test instruments currently used in industry
- relevant regulatory and equipment documentation impacting maintenance activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN413 Undertake remote diagnosis and repair of network faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to undertake fault diagnostic and repair strategies for working with remote network equipment.

It applies to individuals working as field technicians, remotely accessing the network and the Network Operation Centre (NOC) which controls the coordination of remote network activities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Diagnose remote faults | 1.1 Install remote access software on notebook computers<br>1.2 Verify network fault by analysing relevant data<br>1.3 Investigate context and background information relevant to the network fault<br>1.4 Source appropriate documentation and test equipment relevant to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the network fault<br>1.5 Conduct appropriate tests and analyse results<br>1.6 Diagnose network faults using established methodical strategies in a timely fashion without disruption to other services |
| 2. Plan remote repair | 2.1 Assess involvement level of the NOC in planning the repair<br>2.2 Plan for any necessary outages and notify customers<br>2.3 Develop repair strategies to clear fault<br>2.4 Develop a strategy for rerouting customer traffic if applicable<br>2.5 Advise on-site personnel of required work and clearly communicate the repair strategy |
| 3. Repair fault | 3.1 Initiate remote repair strategies to reconfigure or repair remote equipment in a manner safe to self, fellow workers, network equipment and public<br>3.2 Inform customers of repair progress where fault has caused degradation of service or outage<br>3.3 Escalate unresolved faults according to established enterprise procedure<br>3.4 Test remote repair for required performance<br>3.5 Assess ongoing network performance and the likelihood of further problems |
| 4. Report remote diagnosis and repair and document results | 4.1 Notify all relevant parties of results of remote diagnosis and repair<br>4.2 Record details relating to any outage according to enterprise procedures<br>4.3 Complete all relevant documentation and recommend any changes required by the enterprise quality assurance system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.2, 1.3, 3.3, 4.2, 4.3 | • Recognises and interprets complex technical data, procedures, equipment, system manuals and specifications |
| Writing | 2.2-2.5, 3.2, 4.1-4.3 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation and make recommendations |
| Oral Communication | 2.2, 2.5, 3.2, 4.1 | • Articulates clearly and concisely to provide advice and guidance to technical personnel working across different levels and in different contexts<br>• Uses well-developed listening and questioning techniques to confirm understanding |
| Numeracy | 1.2, 1.5 | • Interprets a wide variety of numerical readings and data |
| Navigate the world of work | 3.1, 3.3, 4.2 | • Takes personal responsibility for adherence to legal and regulatory responsibilities, and enterprise policies and procedures relevant to own work<br>• Alerts others of issues that may affect self or others, with specific reference to safety |
| Interact with others | 2.2, 3.2, 4.1 | • Selects and uses appropriate conventions and protocols when communicating with customers and technical staff in a range of work contexts |
| Get the work done | 1.1, 1.3-1.6, 2.1-2.3, 3.1, 3.3-3.5, 4.3 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these when troubleshooting existing technology<br>• Works logically and systematically to monitor, analyse and action job priorities<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options and seeking input and advice from others when escalating difficulties |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN413 Undertake remote diagnosis and repair of network faults | ICTTEN4087A Undertake remote diagnosis and repair of network faults | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN413 Undertake remote diagnosis and repair of network faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- communicate effectively with relevant parties, using appropriate technical and non-technical language
- diagnose and identify faults, including using fault history and ranking likely causes
- plan and coordinate repair of network faults
- apply enterprise escalation and outage procedures following related work health and safety (WHS) requirements and work practices
- ensure customers and others are kept notified of works progress.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe telecommunications systems and equipment and technologies likely to be encountered in remote networks
- explain principles and use of path protection
- outline key components of a telecommunications network
- describe test equipment and test procedures required for determining network faults
- evaluate test results and specify solutions
- explain typical problems and challenges that arise in Network Operations Centres (NOCs) and in the field.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which remote diagnosis and repair of network may be conducted
- test equipment currently used in industry
- manufacturer's technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN414 Repair telecommunication system faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to examine a customer report or a maintenance schedule, and diagnose faults which may be in optical, computer, radio, satellite, security or radio frequency identification (RFID) systems found in customer and service provider access networks.

It applies to individuals working as field officers, technicians or technical supervisors from carriers, contractors or other service providers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for equipment repairs | 1.1 Obtain relevant legislation, codes, regulations and compliance standards for conducting work<br>1.2 Identify hazards, make worksite safe according to relevant safety legislation and company work practices and use personal protective equipment<br>1.3 Notify customer and other appropriate personnel of work, and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | arrange for site access and security where required<br>1.4 Obtain fault details to determine type of system fault<br>1.5 Determine the type of repair required according to enterprise guidelines, site requirements and type of equipment, and arrange for additional technical support as appropriate<br>1.6 Confirm if warranties and service agreements covering identified repairs exist<br>1.7 Obtain tools and necessary hardware and ensure replacement parts and material is delivered to the worksite at the required time |
| 2. Repair fault | 2.1 Follow work health and safety (WHS) and environmental requirements when carrying out repair or replacement tasks<br>2.2 Notify appropriate personnel of service disruption and remove network equipment from service<br>2.3 Diagnose the fault and carry out repair work on equipment according to manufacturer's or enterprise procedures<br>2.4 Test equipment to manufacturer's specifications following repairs and return to live operation for testing overall performance |
| 3. Complete repair work documentation and administrative tasks | 3.1 Notify customer and other appropriate personnel of completion of repair work according to enterprise guidelines<br>3.2 Record any changes to equipment and store according to enterprise guidelines<br>3.3 Dispose of waste and debris from worksite according to environmental requirements and enterprise guidelines<br>3.4 Complete administrative tasks and make recommendations for improvements under quality assurance system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.5, 1.6, 2.3, 3.1, 3.3, 3.4 | • Recognises and interprets complex technical documentation and standards to determine job requirements |


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| | | |
|---|---|---|
| Writing | 1.3, 2.2, 3.1, 3.2, 3.4 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation |
| Oral Communication | 1.3, 2.2, 3.1 | • Provides information using language appropriate to audience and context<br>• Uses well-developed listening and questioning techniques to confirm understanding |
| Numeracy | 1.5 | • Uses mathematical formulae to interpret numerical data including equipment specifications |
| Navigate the world of work | 1.2, 2.1, 3.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context |
| Interact with others | 1.3, 2.2, 3.1 | • Selects and uses appropriate conventions and protocols when communicating with customers and technical staff in a range of work contexts |
| Get the work done | 1.1, 1.3-1.5, 1.7, 2.3, 2.4 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these when troubleshooting existing technology<br>• Works logically and systematically to monitor, analyse and action job priorities<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Initiates standard procedures when responding to familiar problems within immediate context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN414 Repair telecommunication system faults | ICTTEN4102A Repair telecommunication system faults | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

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# Assessment Requirements for ICTTEN414 Repair telecommunication system faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- communicate effectively with customers and other personnel, using appropriate technical and non-technical language to ensure understanding
- diagnose and identify faults methodically, using fault history and recognition of likely causes
- repair telecommunication equipment according to manufacturer's or enterprise procedures, applying related work health and safety (WHS) requirements and work practices
- test equipment following repairs and put back into commission
- communicate with personnel and customers during and upon completion of works.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe anti-static procedures required to protect equipment under repair
- outline enterprise policies and procedures
- summarise fault diagnosis techniques
- describe general fault-finding techniques and test equipment
- outline work health and safety (WHS) requirements and work practices
- identify commonly used and emerging products
- explain safety requirements and standards
- summarise telecommunications network and equipment fault types and rectification
- describe telecommunications network and equipment types
- provide a detailed explanation of test equipment.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which diagnosis and repair of communication equipment may be conducted
- test equipment currently used in industry
- manufacturer's technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN415 Install and configure internet protocol TV in a home network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to arrange a secure internet protocol (IP) network for a customer.

It applies to individuals who install Next Generation Networks (NGNs). These IP networks provide fast internet, voice over internet protocol (VoIP), IPTV and internet TV services.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to implement IPTV in a home network | 1.1 Obtain and clarify work health and safety (WHS) requirements and risk control measures and procedures for a given work area, with appropriate personnel<br>1.2 Evaluate existing customer home network equipment for operational status |
| 2. Design IPTV integration to a home | 2.1 Prepare a configuration layout integrating IPTV to existing customer network using IPTV network elements to provide optimum |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| network to meet customer requirements | video delivery service<br>2.2 Select IPTV network elements to provide optimum video delivery service<br>2.3 Obtain configuration instructions for network elements<br>2.4 Design connection plan to integrate customer network elements and optimise system performance<br>2.5 Identify any connection problems and amend design plan |
| 3. Implement IPTV design plan to a home network | 3.1 Interconnect network elements according to design plan using manufacturer's instructions and IP addressing schemes<br>3.2 Configure and test network elements to provide integrated IPTV to the existing system<br>3.3 Provide a free-to-air (FTA) connection over digital video broadcasting – terrestrial (DVB-T) to complement the IPTV service<br>3.4 Set up customer specific operations as required<br>3.5 Configure security measures in an IPTV network to protect against security threats<br>3.6 Troubleshoot home network according to manufacturer's specifications and escalate unresolvable items to the service provider |
| 4. Complete and document network installation | 4.1 Restore worksite to safe condition, according to established safety procedures<br>4.2 Record and store essential installation information<br>4.3 Notify appropriate personnel of completion of the task and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1 | • Recognises and interprets complex technical specifications and related information |
| Writing | 1.1, 2.4, 2.5, 4.2, 4.3 | • Uses clear, specific and industry-related terminology to produce plans and update workplace documentation |


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| | | |
|---|---|---|
| Oral Communication | 4.3 | • Articulates clearly and concisely to provide advice and guidance to customers and personnel<br>• Uses well-developed listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.1, 4.1 | • Takes personal responsibility for adherence to organisational procedures and protocols, and legal and regulatory responsibilities relevant to own work |
| Get the work done | 1.1, 1.2, 2.1-2.3, 2.5, 3.1-3.6 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these when troubleshooting existing technology<br>• Works logically and systematically to monitor, analyse and action job priorities<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to resolve a predictable range of network problems, establishing criteria for deciding between options and seeking input and advice from others when escalating difficulties |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN415 Install and configure internet protocol TV in a home network | ICTTEN4126A Install and configure internet protocol TV in a home network | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

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# Assessment Requirements for ICTTEN415 Install and configure internet protocol TV in a home network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- create and follow implementation plans for internet protocol television (IPTV)
- install relevant network hardware and software
- configure and test IPTV network according to specified guidelines
- integrate IPTV to existing network
- produce appropriate documentation
- implement secure network.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain competing video delivery over broadband networks
- outline current industry-accepted hardware and software products
- summarise IPTV configurations
- clarify IPTV protocols and encoding techniques
- summarise networking technologies, incorporating substantial depth in network operating systems and IP networks
- outline transmission technologies and protocols
- summarise video compression formats
- describe the common issue that affects home network performance.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where installation and configuration of an IPTV network may be conducted
- equipment currently used in industry
- information on different protocols
- relevant technical information, legislative requirements and other site and project-related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN416 Install, configure and test an internet protocol network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to select network elements to meet client business specifications, ensure interoperability within the network, apply network topologies, protocols and security issues, and troubleshoot when required.

It applies to individuals who carry out installation, maintenance and upgrade of information and communications technology (ICT) networks, and are employed by telecommunications or information technology networking provisioning companies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install IP network | 1.1 Prepare for given work according to relevant legislation, work health and safety (WHS) regulations, codes and standards<br>1.2 Arrange site access according to required procedure<br>1.3 Review existing network design documentation to ensure it is current and complete |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Select components and network elements required to be installed to meet the technical requirements<br>1.5 Contact vendors and service suppliers to obtain specifications and availability of identified components<br>1.6 Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to client<br>1.7 Liaise with appropriate person to obtain approval for the plans, including security clearance and timing |
| 2. Install and configure IP network | 2.1 Install and configure server hardware and software according to organisational and industry standards, following plans<br>2.2 Install and configure computer, other hardware and software, according to organisational and industry standards and plans<br>2.3 Install and configure other software required for the network to operate with security and integrity according to the plan |
| 3. Test and reconfigure IP network | 3.1 Test installed software and hardware, utilising available technical tools, to ensure all components are functioning as expected<br>3.2 Test the network to ensure it is functioning according to specifications<br>3.3 Resolve problems identified in the modified network |
| 4. Complete documentation and clean worksite | 4.1 Complete hardware and asset recording document in line with organisational requirements<br>4.2 Document installation, boot-up and configuration procedures according to organisational requirements<br>4.3 Tabulate test results and complete all user reports<br>4.4 Complete client report and notify of network status<br>4.5 Clean up and restore worksite to client's satisfaction<br>4.6 Secure sign-off from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.3, 3.2, 4.1, 4.2 | • Recognises and interprets technical, legislative and operational documentation to determine job requirements |
| Writing | 1.5-1.7, 4.1-4.4 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation in predetermined formats |
| Oral Communication | 1.5, 1.7, 4.4 | • Clearly liaises with internal and external personnel on technical, operational and business related matters<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 3.1-3.3 | • Makes calculations required to take test measurements, interpret results and evaluate performance and interoperability of network |
| Navigate the world of work | 1.1, 4.5 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Interact with others | 4.5, 4.6 | • Cooperates with others as part of familiar routine activities and contributes to specific activities requiring joint responsibility and accountability |
| Get the work done | 1.2, 1.4, 1.6, 2.1-2.3, 3.1-3.3, 4.5 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Works logically and systematically to monitor, analyse and action job priorities<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, depending on differing operational contingencies, risk situations and environments |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN416 Install, configure and test an internet protocol network | ICTTEN4198A Install, configure and test an internet protocol network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN416 Install, configure and test an internet protocol network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan and prepare for the IP network installation task
- select network elements to meet client's business specifications
- install, configure and test network elements to ensure interoperability within the network
- apply network topologies, protocols and security issues
- apply solutions to defined network problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain client's business domain, business function and organisation
- describe current industry-accepted hardware and software products
- outline data and voice transmission technologies and protocols
- summarise networking technologies, incorporating substantial depth in some areas
- explain router-based network architectures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where network installation may be conducted
- field measurement equipment currently used in industry


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- network design documentation
- equipment specifications
- network components
- hardware and software
- a live network
- organisational guidelines
- networked (LAN) computers
- a wide area network (WAN) service point of presence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN417 Install, configure and test a router

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to undertake router installation and configuration, as part of an upgrade in an existing network or the implementation of a new network.

It applies to individuals who carry out installation, maintenance and upgrade of information and communication technologies (ICT) networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications networks engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install router | 1.1 Prepare for given work according to relevant legislation, work health and safety (WHS) regulations, codes and standards<br>1.2 Arrange site access according to required procedure<br>1.3 Ascertain network topology from technical requirements<br>1.4 Determine the internet protocol (IP) addressing scheme for the network topology |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Evaluate network management and security requirements, with reference to current and future requirements<br>1.6 Select a router with appropriate features according to technical requirements<br>1.7 Choose cables, wireless application protocol (WAP), wide area network (WAN) connectors and other peripherals according to network and router specification, and WAN protocols |
| 2. Install and configure router | 2.1 Assemble router and peripherals according to manufacturer's requirements, enterprise guidelines and protocols<br>2.2 Connect communications cables and WAN connectors to the router and network<br>2.3 Configure router according to manufacturer's instructions and technical requirements, taking into account interoperability requirements with network components |
| 3. Test router and reconfigure network | 3.1 Test the router for connectivity across the network and for routing protocol functions<br>3.2 Adapt or modify predetermined router configuration, depending on outcome of tests<br>3.3 Review router in line with organisational requirements<br>3.4 Test router and peripherals according to manufacturer's instructions and technical requirements<br>3.5 Test hardware and router to ensure full functionality and interoperability<br>3.6 Reconfigure additional hardware as required<br>3.7 Make adjustments to network depending on test results |
| 4. Complete documentation and clean worksite | 4.1 Tabulate test results and complete all user reports<br>4.2 Complete report and notify client of network status<br>4.3 Clean up and restore worksite to client's satisfaction<br>4.4 Secure sign-off from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.3, 3.2, 3.3 | • Recognises and interprets technical, legislative and operational documentation to determine job requirements |
| Writing | 3.4, 4.1, 4.2 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation in predetermined formats |
| Oral Communication | 4.2 | • Clearly liaises with internal and external personnel on technical, operational and business related matters<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 2.3, 3.1, 3.2, 3.4-3.7 | • Undertakes test measurements, interprets results and evaluates performance and interoperability of network |
| Navigate the world of work | 1.1, 4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Interact with others | 4.4 | • Cooperates with others as part of familiar routine activities and contributes to specific activities requiring joint responsibility and accountability |
| Get the work done | 1.2-1.7, 2.1-2.3, 3.1-3.7 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Takes responsibility for own workload, negotiating some key aspects with others<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, depending on differing operational contingencies, risk situations and environments |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN417 Install, configure and test a router | ICTTEN4199A Install, configure and test a router | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN417 Install, configure and test a router

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan and prepare for router installation task
- select router to meet client's business specifications
- install and test the router ensuring interoperability within the network, and applying router principles and technologies
- report on status of completed installation and seek sign-off and customer satisfaction
- use routers
- apply solutions to defined routing problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and outline codes of practice for computing
- explain the effect of a router on delimiting broadcast traffic and on conserving bandwidth
- explain how dynamic routing algorithms or protocols create and maintain routing tables
- explain how to provide the network with redundant paths for reliability, and the way routers manage these paths
- summarise the following aspects of routers including:
  - basic router commands
  - configuration
  - clock rate
  - password protection of router
  - routing protocol
  - dynamic routing


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  - firewalls
  - functions
  - routing protocols and how they operate
  - tables
- describe router-based network architectures
- explain the use of routing tables in intelligent packet routing and switching.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where router installation may be conducted
- field measurement equipment currently used in industry
- relevant router specifications
- technical requirements for a network
- router
- cabling
- networked (LAN) computers
- wide area network (WAN) service point of presence
- relevant equipment and organisational documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN418 Install and test a radio frequency identification system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required for installation of either a new logistical or security network or upgrade of an existing system.

It applies to individuals who integrate new and converging functionalities to information and communications technology (ICT) networks. They are employed by telecommunications and information technology networking provisioning companies specialising in radio frequency identification (RFID) technology.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install specified RFID system | 1.1 Prepare for given work according to relevant legislation, work health and safety (WHS) regulations, codes, and standards<br>1.2 Arrange site access according to required procedure<br>1.3 Choose the most suitable RFID system based on specifications and in consultation with appropriate person |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Evaluate options for equipment installation siting and antenna positioning to include effects of electromagnetic interference and shielding<br>1.5 Investigate causes of interference with RFID systems<br>1.6 Specify network element requirements for the installation and any training requirements for clients<br>1.7 Create a deployment plan including down times and advise the user group<br>1.8 Obtain all components and devices required for the RFID system |
| 2. Install specified RFID system and resolve any faults | 2.1 Install interrogators or readers according to given plan<br>2.2 Install tags and document correct procedures for locating and orienting tags<br>2.3 Install and undertake network configuration activities using relevant operating system and application upgrades to integrate RFID system into the overall network<br>2.4 Troubleshoot problems between interrogators or readers, tags and networks, including tuning for optimum performance and rectify any faults |
| 3. Test RFID installation according to specification and standards | 3.1 Test system installation according to design specifications and standards including optimum placement of tags, data transmission completeness and record outcomes<br>3.2 Carry out any changes<br>3.3 Validate changes or additions against specifications<br>3.4 Document the test results |
| 4. Complete documentation in compliance with customer requirements and clean worksite | 4.1 Complete all documentation for users according to the design and customer requirements<br>4.2 Complete report and notify client of network status and standards applying to the installation<br>4.3 Clean up and restore worksite to client's satisfaction<br>4.4 Secure sign-off from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 3.3, 4.1 | • Recognises and interprets technical, legislative and operational documentation to determine job requirements |
| Writing | 1.6,1.7, 2.2, 3.4, 4.1, 4.2 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation, including user and training documentation in required formats |
| Oral Communication | 1.3, 1.6, 1.7 | • Clearly liaises with internal and external personnel on technical, operational and business related matters<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 3.1 | • Undertakes test measurements, interprets results and evaluates performance and interoperability of RFID system |
| Navigate the world of work | 1.1, 4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Interact with others | 4.4 | • Cooperates with others as part of familiar, routine activities and contributes to specific activities requiring joint responsibility and accountability |
| Get the work done | 1.2-1.5, 1.8, 2.1-2.4, 3.1, 3.2 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Takes responsibility for own workload, negotiating some key aspects with others<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, depending on differing operational contingencies, risk situations and environments |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN418 Install and test a radio frequency identification system | ICTTEN4202A Install and test a radio frequency identification system | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN418 Install and test a radio frequency identification system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan installation
- use basic research skills for adapting radio frequency identification (RFID) technologies to specified plan and design
- implement and verify RFID operations
- implement RFID architecture across a secure environment
- encode RFID tags and attach to items
- integrate RFID information into business applications
- configure network with IP addressing
- cable and test RFID network
- create technical and user documentation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the client business domain, business function and organisation
- describe common network cable types and connectors
- summarise compatibility issues and resolution procedures
- describe configuration of internet protocol (IP) networks
- describe current industry-accepted hardware and software products used in RFID systems
- explain desktop applications and operating systems as required
- summarise enterprise communication and training systems in relation to training and advising staff involved in deployment
- summarise network topologies


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- outline RFID technologies including:
  - network operating systems
  - protocols
  - interrogators and sensors
  - wireless technologies
  - cabling standards.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where RFID installation may be conducted
- field measurement equipment currently used in industry
- relevant network element specifications
- technical requirements for an RFID network
- cabling
- networked (LAN) computers
- workstations
- RFID diagnostic software
- wide area network (WAN) service point of presence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN419 Implement and troubleshoot enterprise routers and switches

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to determine customer needs, use information communication technologies (ICT) to meet network requirements, rectify equipment errors and create appropriate workplace documentation.

It applies to individuals working as installers of internet protocol (IP) networks, enterprise network technicians, network administrators and other network support personnel.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Prepare for implementation of network routers and switches | 1.1 Prepare for given job according to work health and safety (WHS) and environmental requirements with appropriate personnel<br>1.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>1.3 Determine nature and scope of network routers, network switches and network resources from job briefs or appropriate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | personnel<br>1.4 Select and obtain network services and network application requirements according to enterprise procedures<br>1.5 Obtain identified operating instructions, manuals, hardware and software testing methodologies<br>1.6 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite |
| 2 Implement network switches and routers | 2.1 Configure routers and switches according to manufacturer's specifications and enterprise procedures<br>2.2 Determine network addressing scheme for network connectivity, and verify using calculations<br>2.3 Activate, and verify wide area network (WAN) links provide network connectivity<br>2.4 Enable network services and network applications to the network to complete network connectivity process<br>2.5 Set up traffic access and filtering according to enterprise procedures |
| 3 Troubleshoot network switches and routers | 3.1 Monitor network performance and isolate faults using diagnostic and analysis tools<br>3.2 Troubleshoot network and internet connectivity according to manufacturer's specifications and enterprise procedures |
| 4 Document configuration and troubleshooting records | 4.1 Restore work-site to safe condition according to established safety procedures<br>4.2 Record and store essential implementation information according to enterprise procedures<br>4.3 Notify appropriate personnel of completion of the task according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1, 2.5, 3.2, 4.2, 4.3 | • Recognises and interprets technical, legislative and operational documentation to determine job requirements |
| Writing | 1.1, 1.2, 4.2, 4.3 | • Uses clear, specific and industry-related terminology to produce and update workplace documentation and in communications with relevant personnel |
| Oral Communication | 1.1-1.3, 4.3 | • Clearly liaises with personnel on technical matters<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 2.2 | • Interprets technical data and performs calculations to verify information |
| Navigate the world of work | 1.1, 1.2, 4.1 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work, and draws attention to any issues that may affect self or others<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role |
| Interact with others | 1.6 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction |
| Get the work done | 1.4, 1.5, 2.1-2.5, 3.1, 3.2 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required including troubleshooting common network problems<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Recognises and anticipates an increasing range of unexpected problems, their symptoms and causes on the basis of safety and specified work outcomes |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN419 Implement and troubleshoot enterprise routers and switches | ICTTEN4210A Implement and troubleshoot enterprise routers and switches | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN419 Implement and troubleshoot enterprise routers and switches

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine customer networking requirements
- configure routers and switches using hierarchical addressing over virtual local area networks (VLANs) to meet network link requirements
- enable and control access to network services and applications across the network
- diagnose and rectify network hardware and device configuration faults
- document configuration information, fault-finding history and remediation action.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise access control lists
- give examples of characteristics of a typical enterprise including:
  - features and applications
  - work health and safety (WHS) procedures
  - record keeping procedures
  - switching and routing protocols and strategies:
    - hierarchical addressing
    - multilayer switching
    - routing protocols
    - VLAN routing
- summarise implementation of enterprise wide area networks (WAN) links
- explain network diagnostic and troubleshooting techniques
- describe network modelling


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- specify how to configure and activate network access and security measures
- describe the process of configuring switches and routers to enable local area networks (LAN) and WAN links
- describe the connection process for enterprise networks using WAN services and applications
- describe the purpose of maintaining enterprise network documentation
- summarise the process and importance of troubleshooting network faults and implementing recovery actions
- describe the use of a hierarchical internet protocol (IP) network address scheme
- select and use tools and equipment to analyse enterprise networks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a network facility and workstations
- operating instructions, installation documents and manuals
- hardware and software testing tools currently used in industry.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN420 Design, install and configure an internetwork

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to determine customer needs, create appropriate workplace documentation, connect and organise an internetwork according to design specifications, resolving technical problems as they arise.

It applies to individuals who design and install internet protocol (IP) networks including enterprise internetwork technicians, network administrators and network support personnel for large, medium and small office home office (SOHO) enterprises.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for design and installation of internetwork | 1.1 Prepare for given work according to work health and safety (WHS) and environmental requirements with appropriate personnel<br>1.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>1.3 Determine nature and scope of internetwork from job briefs and appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Obtain operating instructions, manuals, hardware and software testing methodologies<br>1.5 Consult appropriate personnel to ensure the task is coordinated effectively with others involved at the worksite |
| 2. Design enterprise internetwork | 2.1 Produce enterprise internetwork topology after considering technical requirements, physical and financial constraints and expansion projections<br>2.2 Determine network devices and network resources, according to enterprise procedures<br>2.3 Produce internetwork design including network security and router and switch configurations to meet design specifications and enterprise procedures |
| 3. Install and configure designed internetwork | 3.1 Install network hardware to network topology design plan according to enterprise procedures<br>3.2 Determine network addressing scheme for network connectivity, and verify using calculations<br>3.3 Configure routers and switches to perform logical connection of the internetwork<br>3.4 Conduct connectivity and performance tests to verify network installation meets design specification<br>3.5 Troubleshoot internetwork and internet connectivity according to manufacturer's specifications and enterprise procedures |
| 4. Complete and document network design and installation | 4.1 Restore worksite to safe condition according to established safety procedures<br>4.2 Record and store essential design and installation information according to enterprise procedures<br>4.3 Notify appropriate personnel of completion of the task according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.3, 2.2, 2.3, 3.1, 3.4, 3.5, 4.2, 4.3 | • Recognises and interprets legislation, enterprise procedures, manuals and technical specifications to determine job requirements |
| Writing | 2.1, 2.3, 4.2, 4.3 | • Uses clear, specific and industry-related terminology to produce network documentation and maintain network records<br>• Writes concisely when communicating with relevant personnel |
| Oral Communication | 1.2, 4.3 | • Negotiates with customers and peers to achieve design specifications<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 3.2 | • Interprets technical data and performs calculations to verify information |
| Navigate the world of work | 1.1, 1.2, 2.2, 2.3, 3.1, 3.5, 4.1-4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work, and draws attention to any issues that may affect self or others<br>• Recognises and follows organisational procedures protocols and meets expectations associated with own role |
| Interact with others | 1.3, 1.5 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction |
| Get the work done | 1.4, 2.1, 2.3, 3.1, 3.3-3.5 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required including troubleshooting common network problems according to helpdesk procedures<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Recognises and anticipates an increasing range of unexpected problems, their symptoms and causes, on the basis of safety and specified work outcomes |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN420 Design, install and configure an internetwork | ICTTEN4211A Design, install and configure an internetwork | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN420 Design, install and configure an internetwork

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine customer requirements
- design internetwork that uses advanced routing and addressing techniques
- install internetwork according to design specification
- configure network devices to meet design functionality
- document internetwork design, installation and configuration.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe enterprise work health and safety (WHS) procedures
- summarise open systems interconnect (OSI) layered communication model
- outline network requirements including:
  - applications
  - lifecycle
  - manageability
  - quality of service
- clarify network design concepts including:
  - business requirements
  - network topologies
  - physical and financial constraints
  - security
  - wired or wireless options


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- describe tool and equipment use
- outline troubleshooting components of this work including:
  - impact of network failure
  - maintenance
  - troubleshooting methodologies
- analyse impact of applications on traffic flow in the network
- describe network design methodologies used to design networks providing a range of services and applications found in larger networks
- define technical requirements, constraints and manageability issues for a given customer network
- identify and describe common tools and equipment used in internet work.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where design and installation of an internetwork network may be conducted
- tools, equipment and materials currently used in industry
- relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN421 Apply advanced routing protocols to network design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to use software tools, equipment, software and protocols to configure and troubleshoot network routers.

It applies to individuals who work cooperatively with others, interpret technical information accurately and work proficiently with information communication technology (ICT). Installers of internet protocol (IP), small and medium sized enterprise (SME) network technicians, network administrators and network support personnel complete this type of work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to apply routing protocols | 1.1 Prepare for given work according to work health and safety (WHS) and environmental requirements with appropriate personnel<br>1.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>1.3 Determine nature and scope of network and network routing |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements from job briefs and appropriate personnel<br>1.4 Determine hardware and software diagnostic test methodologies and testing resources according to enterprise procedures<br>1.5 Obtain operating instructions, manuals, hardware and software testing methodologies<br>1.6 Consult appropriate personnel to ensure task is coordinated effectively with others involved at the worksite |
| 2. Build and test advanced routing | 2.1 Set up router interfaces according to manufacturer's specifications and established procedures<br>2.2 Implement advanced routing protocols to achieve network design requirements<br>2.3 Implement classless addressing across a network to perform logical connectivity, and confirm using calculations<br>2.4 Troubleshoot network routing according to manufacturer's specifications and established procedures<br>2.5 Identify security threats and initiate control measures according to enterprise procedures |
| 3. Complete and document advanced router installation | 3.1 Restore worksite to safe condition according to established safety procedures<br>3.2 Record and store essential installation information according to enterprise procedures<br>3.3 Notify appropriate personnel of completion of the task according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 2.4, 2.5, 3.2, 3.3 | • Recognises and interprets enterprise procedures, manuals and specifications to determine job requirements |
| Writing | 1.2, 3.2, 3.3 | • Uses clear, specific and industry-related terminology to develop network documentation and maintain network records |


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| | | |
|---|---|---|
| | | • Writes concisely when communicating with relevant personnel |
| Oral Communication | 1.2, 1.3, 3.3 | • Liaises and negotiates with customers and peers to achieve design specifications<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 2.3 | • Interprets technical data and performs calculations to verify information |
| Navigate the world of work | 1.1, 1.4, 2.4, 2.5, 3.1-3.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context and draws attention to any issues that may affect self or others<br>• Recognises and follows organisational procedures and protocols and meets expectations associated with own role |
| Interact with others | 1.6 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction |
| Get the work done | 1.4, 1.5, 2.1-2.5, 3.2 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required including troubleshooting common network problems according to helpdesk procedures<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Recognises and anticipates an increasing range of unexpected problems, their symptoms and causes on the basis of safety and specified work outcomes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN421 Apply advanced routing protocols to network design | ICTTEN4212A Apply advanced routing protocols to network design | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN421 Apply advanced routing protocols to network design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan network routing requirements to meet design specification
- configure advanced protocols on network routers
- manage network addressing
- troubleshoot network
- install network security.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain distance vector routing protocols RIP v1 and v2
- outline dynamic routing
- summarise enterprise work health and safety (WHS) procedures
- outline hybrid routing protocols enhanced interior gateway routing protocol (EIGRP)
- explain link-state routing protocols open shortest path first (OSPF)
- explain routing and packet forwarding
- describe routing tables
- summarise scalable routing strategies variable length subnet masking (VSLM) and classless inter-domain routing (CIDR)
- outline security protocols using access lists
- clarify static routing
- explain the use of software tools and equipment.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a network facility and workstations
- tools, equipment and materials currently used in industry
- relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN422 Configure and troubleshoot advanced network switching

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to perform network switch configuration and troubleshooting. This unit applies to large networks involving wireless local area networks (WLANs), virtual local area networks (VLANs), interVLAN routing, remote access management and operating system management of network devices.

It applies to individuals who work cooperatively with others, interpret technical information accurately, and work proficiently with information communication technology (ICT). Installers of internet protocol (IP), enterprise network technicians, network administrators and network support personnel complete this type of work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to work on switched network | 1.1 Prepare for given work according to work health and safety (WHS) and environmental requirements with appropriate personnel<br>1.2 Identify safety hazards and implement risk control measures in |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | consultation with appropriate personnel<br>1.3 Determine nature and scope of network and network topology from job briefs or appropriate personnel<br>1.4 Select and obtain wireless and wired network components requirements according to enterprise procedures<br>1.5 Obtain operating instructions, manuals, hardware and software testing methodologies<br>1.6 Consult appropriate personnel to ensure task is coordinated effectively with others involved at the worksite |
| 2. Configure network switches | 2.1 Set up and configure network switches according to manufacturer's specifications and enterprise procedures<br>2.2 Build and configure a routed network using remote access management<br>2.3 Establish multiple VLANs across the network to manage access and traffic across the network |
| 3. Troubleshoot network | 3.1 Monitor network traffic and assess performance against manufacturer's specifications and established procedures<br>3.2 Troubleshoot network according to manufacturer's specifications and enterprise procedures<br>3.3 Identify and rectify faults according to enterprise procedures |
| 4. Complete and document network installation and configuration | 4.1 Restore worksite to safe condition according to established safety procedures<br>4.2 Record and store essential configuration information according to enterprise procedures<br>4.3 Notify appropriate personnel of completion of the task according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1, | • Recognises and interprets enterprise procedures, manuals and specifications to determine job |


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| | | |
|---|---|---|
| | 3.2, 3.3, 4.2, 4.3 | requirements |
| Writing | 4.2, 4.3 | • Uses clear, specific and industry-related terminology to develop network documentation and maintain network records<br>• Writes concisely when communicating with relevant personnel |
| Oral Communication | 1.2, 1.3, 4.3 | • Liaises and negotiates with customers and peers to achieve outcomes<br>• Uses listening and questioning skills to confirm understanding of requirements |
| Numeracy | 2.2, 2.3, 3.1-3.3 | • Interprets technical data and performs calculations to verify information |
| Navigate the world of work | 1.1, 1.2, 2.1, 3.1-3.3, 4.1-4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work, and draws attention to any issues that may affect self or others<br>• Recognises and follows organisational procedures and protocols and meets expectations associated with own role |
| Interact with others | 1.6 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction<br>• Selects and uses appropriate conventions and protocols when communicating with co-workers in a range of work contexts |
| Get the work done | 1.4, 1.5, 2.1-2.3, 3.1-3.3 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required including troubleshooting network malfunctions<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Recognises and anticipates an increasing range of unexpected problems, their symptoms and causes, on the basis of safety and specified work outcomes |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN422 Configure and troubleshoot advanced network switching | ICTTEN4213A Configure and troubleshoot advanced network switching | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN422 Configure and troubleshoot advanced network switching

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- build and configure a routed network
- configure a virtual local area networks (VLAN) on a given network topology
- configure VLAN trunking and spanning tree protocols
- establish VLANs over a wireless network
- design and deploy remote access and network security.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline enterprise work health and safety (WHS) procedures
- explain interVLAN routing
- describe spanning tree protocol
- clarify switch and remote network security management
- describe the tool and equipment required, and their correct usage
- outline troubleshooting procedures
- summarise VLAN trunking protocol
- explain wireless local area network (LAN) set-up and access configuration.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:


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- a site where configuring advanced network switching may be conducted
- tools, equipment and materials currently used in industry
- relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN423 Install and maintain a wide area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to use appropriate tools, equipment, software and protocols to connect and support a wide area network (WAN).

It applies to individuals who work cooperatively with others, interpret technical information accurately and work proficiently with information communication technology (ICT). Installers of internet protocol (IP) networks, IP network technicians, network administrators and network support personnel complete this type of work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for installation and maintenance of network with WAN access | 1.1 Prepare for given work according to work health and safety (WHS) and environmental requirements with appropriate personnel<br>1.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>1.3 Determine network nature and scope from job briefs or appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Select and obtain network hardware, software, WAN protocol and technology requirements according to enterprise procedures<br>1.5 Obtain operating instructions, manuals, installation procedures, hardware and software testing methodologies and testing resources<br>1.6 Consult appropriate personnel to ensure task is coordinated effectively with others involved at the worksite |
| 2. Install and maintain WAN accessible network | 2.1 Determine network addressing scheme for network connectivity, and confirm using calculations<br>2.2 Identify security threats and initiate control measures according to enterprise procedures<br>2.3 Set up and configure network to provide WAN access according to manufacturer's specifications and enterprise procedures<br>2.4 Use hardware and software analysis and diagnostic methodologies to test network connectivity |
| 3. Complete and document WAN network installation | 3.1 Restore worksite to safe condition according to established safety procedures<br>3.2 Record and store essential installation information according to enterprise procedures<br>3.3 Notify appropriate personnel of completion of the task according to enterprise procedures |

# Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.2, 2.3, 3.2, 3.3 | • Recognises and interprets enterprise procedures, manuals and specifications to determine job requirements |
| Writing | 1.2, 3.2, 3.3 | • Uses clear, specific and industry-related terminology to develop network documentation and maintain network records<br>• Writes concisely when communicating with relevant personnel |


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| | | |
|---|---|---|
| Oral Communication | 1.2, 1.3, 1.6, 3.3 | • Liaises and negotiates with others to achieve outcomes<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 2.1 | • Interprets technical data and performs calculations to verify information |
| Navigate the world of work | 1.1, 1.2, 1.4, 2.2, 2.3, 3.1-3.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work, and draws attention to any issues that may affect self or others<br>• Recognises and follows organisational procedures and protocols and meets expectations associated with own role |
| Interact with others | 1.6 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction |
| Get the work done | 1.4, 1.5, 2.1-2.4, 3.2, 3.3 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required including using industry-standard troubleshooting<br>• Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Recognises and anticipates an increasing range of unexpected problems, their symptoms and causes, on the basis of safety and specified work outcomes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN423 Install and maintain a wide area | ICTTEN4214A Install and maintain a wide area network | Updated to meet Standards for Training | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| network | | Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN423 Install and maintain a wide area network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan installation of a wide area network (WAN) accessible network
- select and apply WAN link protocols
- configure internet protocol (IP) addressing across WAN
- troubleshoot WAN communication issues
- install WAN access security measures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline enterprise work health and safety (WHS) procedures
- explain IP addressing services and network scaling
- summarise methods of securing network services including access control lists
- explain Open Systems Interconnection (OSI) layered communication model
- outline requirements to provide teleworker network services
- describe correct usage of relevant tools and equipment
- outline WAN link protocols including:
  - frame relay
  - high-level data link control (HDLC)
  - link access procedure, balanced (LAPB)
  - point-to-point protocol (PPP)
- summarise WAN troubleshooting methodologies and analysis and diagnostic tools.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where installation and maintenance of a WAN may be conducted
- tools, equipment and materials currently used in industry
- relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN424 Install and configure internet protocol TV in a service provider network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design and connect a multi-protocol label switching (MPLS) network for internet protocol TV (IPTV). This includes secure core and access networks for the service provider.

It applies to individuals who interpret technical information accurately and work proficiently with information communication technology (ICT). Technical staff installing an internet protocol (IP) service provider network for delivery of emerging technologies for IPTV using multicast (broadcast) and unicast video on demand (VoD) streaming complete this work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to implement IPTV service provider | 1.1 Obtain and clarify work health and safety (WHS) requirements and risk control measures and procedures for a given work area with appropriate personnel<br>1.2 Use topology of an IPTV network and design plans to locate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | network elements for video over broadband<br>1.3 Select network elements to provide optimum video delivery service<br>1.4 Obtain configuration instructions for network elements |
| 2. Implement IPTV network to meet business requirements | 2.1 Configure an IP-MPLS core network overlaying the IP network to deliver IPTV<br>2.2 Implement VoD application to meet bandwidth requirements and quality of service (QoS) requirements for commercial viability of IPTV network<br>2.3 Install and configure video service routers for content delivery system (CDS) applications to support TV streaming and internet streaming, with session shifting for follow-me or mobile video facility<br>2.4 Produce addressing scheme and protocols required for IP multicasting used in the IPTV network<br>2.5 Configure security measures in IPTV network to protect against security threats<br>2.6 Configure label switch routers (LSR) to provide secure methods of transporting IP packets using layer 2 protocols in an MPLS network<br>2.7 Configure MPLS-TE (traffic engineering) to provide routing on diverse paths to avoid congestion and guarantee bandwidth services<br>2.8 Troubleshoot network according to manufacturer's specifications and enterprise procedures |
| 3. Build and configure CDN architecture network | 3.1 Build content delivery network (CDN) architecture overlaying routing and switching architecture of an IP network to deliver internet TV to internet devices<br>3.2 Use routing and switching infrastructure to enable CDN share characteristics of each element to produce network functionality<br>3.3 Install and configure web cache communication protocol (WCCP) on router to redirect traffic flows in real-time to reduce transmission costs and download times |
| 4. Complete and document network installation | 4.1 Restore worksite to safe condition according to established safety procedures<br>4.2 Record and store essential installation information according to enterprise procedures<br>4.3 Notify appropriate personnel of completion of the task according |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.8, 4.2, 4.3 | • Recognises and interprets enterprise procedures, manuals and technical specifications to determine job requirements |
| Writing | 4.2, 4.3 | • Uses clear, specific and industry-related terminology to develop network documentation and maintain network records<br>• Writes concisely when communicating with relevant personnel |
| Oral Communication | 1.1, 4.3 | • Liaises closely with personnel to determine specific installation and safety requirements<br>• Uses listening and questioning skills to confirm understanding for requirements |
| Numeracy | 2.4, 3.3 | • Interprets technical data to produce IP addressing schemes and determine cost efficiencies |
| Navigate the world of work | 1.1, 2.8, 4.1-4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work, and draws attention to any issues that may affect self or others<br>• Recognises and follows organisational procedures and protocols and meets expectations associated with own role |
| Get the work done | 1.2-1.4, 2.1,<br>3.1-3.3, 2.2-2.8 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required including using industry-standard troubleshooting<br>• Takes responsibility for planning and organising own workload, identifying benchmarks and scope for projects |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN424 Install and configure internet protocol TV in a service provider network | ICTTEN4215A Install and configure internet protocol TV in a service provider network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN424 Install and configure internet protocol TV in a service provider network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- install relevant network hardware and software
- configure and test internet protocol television (IPTV) network according to specified guidelines
- configure label switch routers (LSR) in an multi-protocol label switching (MPLS) network
- build and configure content delivery network (CDN) architecture network
- implement secure network.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain competing video delivery over broadband networks
- summarise current industry-accepted hardware and software products
- outline networking technologies incorporating detailed knowledge of network operating systems and IP networks
- describe transmission technologies and protocols including:
  - border gateway protocol (BGP)
  - enhanced interior gateway routing protocol (EIGRP)
  - flash
  - hypertext transfer protocol (HTTP)
  - internet group management protocol (IGMP)
  - open shortest path first (OSPF)
  - real time streaming protocol (RTSP)
  - routing information protocol (RIP)


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- web cache communication protocol (WCCP) operations.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where installation and configuration of an IPTV network may be conducted
- equipment currently used in industry
- information on different protocols
- relevant technical information, legislative requirements and other site and project-related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN425 Design, install and configure a customer smart technology network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to test and troubleshoot smart technology network installations.

It applies to individuals who design and install smart grid networks for domestic or industrial enterprises using internet protocol (IP) networking technology.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for design and installation of a smart technology network | 1.1 Prepare for given work according to work health and safety (WHS) and environmental requirements with appropriate personnel from the enterprise<br>1.2 Identify safety hazards and implement risk control measures in consultation with appropriate personnel<br>1.3 Determine nature and scope of the smart technology network from customer specifications and appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Obtain operating instructions, manuals, hardware and software testing methodologies<br>1.5 Consult appropriate personnel to ensure task is coordinated effectively with others involved at the worksite |
| 2. Design a customer smart technology network | 2.1 Produce a smart technology network topology that is interoperable and scalable after considering customer requirements, technical specifications, physical and financial constraints and expansion projections<br>2.2 Determine network devices and network resources according to enterprise procedures<br>2.3 Produce smart technology network design including network security and network element configurations to meet design specifications and enterprise procedures |
| 3. Install and configure a designed smart technology network | 3.1 Install smart technology network hardware to topology design plan according to enterprise procedures<br>3.2 Determine network addressing scheme for network connectivity, and verify using calculations<br>3.3 Configure network elements to perform logical connection of smart technology network topology with required network security features<br>3.4 Conduct connectivity and performance tests to verify the network installation meets design specification<br>3.5 Troubleshoot smart technology network and internet connectivity according to manufacturer's specifications and enterprise procedures |
| 4. Complete and document network design and installation | 4.1 Restore worksite to safe condition according to established safety procedures<br>4.2 Record and store essential design and installation information according to enterprise procedures<br>4.3 Notify appropriate personnel of task completion according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.3, 2.1, 2.3, 3.5, 4.2, 4.3 | • Recognises and interprets enterprise procedures, manuals and specifications to determine important information |
| Writing | 2.3, 4.2, 4.3 | • Uses clear, specific and industry-related terminology to develop network documentation and update workplace records and in written communications with customers |
| Oral Communication | 1.1-1.3, 1.5, 4.3 | • Liaises with appropriate personnel about technical requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 2.1, 3.2 | • Evaluates and reviews technical data and makes calculations to verify connectivity and configuration |
| Navigate the world of work | 1.1, 1.2, 2.2, 2.3, 3.1, 3.5, 4.1-4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work, and draws attention to any issues that may affect self or others<br>• Recognises and follows organisational protocols and meets expectations associated with own role |
| Interact with others | 1.1-1.3,1.5 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction<br>• Selects and uses appropriate conventions and protocols when communicating with customers and co-workers in a range of work contexts |
| Get the work done | 1.3, 1.4, 2.1, 2.2, 3.1-3.5, 4.2 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Diagnoses and implements standard solutions to unexpected situations based on safety requirements and specified work outcomes<br>• Understands purposes and specific functions of common digital systems and uses them effectively to complete routine tasks |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN425 Design, install and configure a customer smart technology network | ICTTEN4229B Design, install and configure a customer smart technology network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN425 Design, install and configure a customer smart technology network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine job requirements by referring to documentation and through discussion with appropriate people
- design a smart technology network that uses advanced networking techniques
- install a smart technology network according to design specification
- configure network devices to meet design functionality
- document smart technology network design, installation and configuration.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline enterprise work health and safety (WHS) procedures
- summarise network design concepts including:
  - business requirements
  - network topologies
  - physical and financial constraints
  - security
  - wired or wireless options
- explain network requirements:
  - applications
  - lifecycle
  - manageability
  - quality of service


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- summarise open systems interconnect (OSI) layered communication model
- summarise the following areas of troubleshooting including:
  - impact of network failure
  - maintenance troubleshooting
  - different problem-solving methodologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where design and installation of a smart technology network may be conducted
- tools, equipment and materials currently used in industry
- relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN426 Design network projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan, design, construct and manage access, building or core telecommunications networks.

It applies to individuals working as technical officers, communications workers or engineers, from private and public organisations who plan, design and manage access, building and core network technologies for a service provider.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse different types of network technologies | 1.1 Review available network technologies and compare them for application to the expansion or augmentation of network services<br>1.2 Examine various techniques for access networks to provide service to green fields, brown fields and rehabilitation projects<br>1.3 Examine various techniques for building and core networks to provide for new service, capacity expansion and equipment recovery projects |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Determine the type of network by accessing and using network information sources<br>1.5 Produce a brief on how network architecture components relate to the larger network and their impact on the work<br>1.6 Develop an installation activity schedule to minimise workplace disruption and according to relevant regulation and standards<br>1.7 Evaluate equipment type and technologies to be considered to determine availability and compatibility with existing network equipment |
| 2. Apply deployment and construction practices for network technologies | 2.1 Review conduit and jointing chamber standards and practices for the access network<br>2.2 Examine standards, practices and requirements for locating telecommunications infrastructure in the access network<br>2.3 Examine standards, practices and requirements for locating and standing racks and cabinets and supporting infrastructure<br>2.4 Examine capacity and practices for cabling and patching of twisted pair, coax and fibre distribution frames |
| 3. Review network standards and prepare draft design | 3.1 Review client's network deployment rules and apply to a network design<br>3.2 Produce preliminary plan or design on deployment of the network that maintains integrity of access, building or core networks<br>3.3 Establishing a solution for unforeseen problems through discussions with appropriate personnel, with consideration to job specifications, safety and enterprise procedures to establish a solution<br>3.4 Review plan to ensure it complies with all applicable standards and codes required when working on network, and where appropriate make adjustments<br>3.5 Produce final design including recommendations agreed with customer |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.4, 1.6, 3.3 | • Recognises and interprets technical and non-technical documentation to incorporate important information in designs |
| Writing | 1.5, 1.6, 3.1, 3.2, 3.4, 3.5 | • Uses clear, specific and industry-related terminology to document technical requirements and procedures |
| Oral Communication | 3.3 | • Liaises with appropriate personnel about technical and operational requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Navigate the world of work | 2.1-2.4, 3.1, 3.3, 3.4 | • Takes personal responsibility for adherence to legal and regulatory responsibilities and practices relevant to own work<br>• Recognises and follows organisational procedures protocols and meets expectations associated with own role |
| Interacts with others | 3.3 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction |
| Get the work done | 1.1-1.3, 1.7, 3.3 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Diagnoses and implements standard solutions to unexpected situations based on safety requirements and specified work outcomes<br>• Reflects on ways digital systems and tools are used to achieve work goals, and recognises strategic and operational applications |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN426 Design network projects | ICTTEN4241A Design network projects | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN426 Design network projects

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify the most suitable network technology to be deployed for a given requirement
- apply established planning, design or management techniques for project deployment
- produce a design, which is compliant to the techniques, rules and standards of the deployed network.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the following features of a telecommunications network:
  - architecture and geographical categorisations
  - information sources
  - technology and equipment
  - capacity and capability management
  - capacity limitation of various platforms
  - commercial considerations of access network deployment
  - compatibility issues of technology and equipment
  - currency of technology and equipment use
  - enterprise deployment rules and rational
  - exemption process criteria
  - major equipment components of a modern access architecture
  - monitoring techniques to manage the access network
  - network topologies


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  - product capability and availability allowable within an access network
  - telecommunications access networks issues and challenges
  - telecommunications legislation, acts and regulations
- identify and describe key features of common telecommunications networks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- network planning, design and other site-related documentation
- equipment specifications
- live network of training facilities with simulated network organisational guidelines
- relevant standards and practices documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN427 Conduct site surveys to identify carrier installation requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to implement design processes, develop solutions, and merge technological development and product implementation in access, building and core networks.

It applies to individuals working as technical staff on projects within a carrier network for carrier, commercial or industrial installations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Obtain access to work site | 1.1 Notify appropriate personnel, if necessary, to arrange site access, discuss installation requirements and identify carrier network systems<br>1.2 Assess site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.3 Use network information systems to obtain planning data |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Identify existing infrastructure | 2.1 Confirm details of installation with stakeholders<br>2.2 Verify site conditions and building construction<br>2.3 Locate and record existing facilities and systems<br>2.4 Confirm installation locations and identify barriers to planned network extension<br>2.5 Integrate existing network and floor plans into documentation where available |
| 3. Integrate existing infrastructure into design brief | 3.1 Review existing plans, drawings and databases against the design brief<br>3.2 Calculate capacity of existing facilities against proposed usage to ensure appropriate design decisions for new installation<br>3.3 Incorporate all data into new installation design<br>3.4 Mark up plans and prepare report on new installation design<br>3.5 Develop contingency plans for anticipated constraints |
| 4. Review design for compliance with standards and legislation | 4.1 Examine standards, practices and requirements for locating telecommunications infrastructure in the access network<br>4.2 Review installation design to ensure compliance with requirements of federal, state and local regulations, relevant legislation, codes and standards<br>4.3 Initiate any special studies or investigations necessary for completion of the project |
| 5. Complete required reports and documentation | 5.1 Complete required documents promptly and according to planning parameters<br>5.2 Obtain carrier confirmation from documented requirements<br>5.3 Distribute design documentation to stakeholders promptly<br>5.4 Obtain project plan sign-off from carrier |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.3, 2.2-2.5, 3.1, 3.5, 4.2, 5.2 | • Recognises and interprets a wide variety of technical and non-technical documentation |
| Writing | 1.1, 2.1, 2.3, 3.3, 3.4, 4.1, 4.3, 5.1, 5.2, 5.4 | • Uses clear, specific and industry-related terminology to document technical requirements and procedures |
| Oral Communication | 1.3, 2.1, 2.4, 4.3, 5.2 | • Participates in verbal exchanges with customers and team members about technical and operational requirements using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 3.2 | • Analyses numerical information to interpret site-specific data |
| Navigate the world of work | 1.2, 4.1, 4.2, 5.1 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work |
| Interact with others | 2.1, 4.3, 5.2, 5.4 | • Selects and uses appropriate conventions and protocols when communicating with customers and co-workers in a range of work contexts |
| Get the work done | 1.1-1.3, 2.2-2.5, 3.3, 3.5, 4.3, 5.2-5.4 | • Determines job priorities and works logically and systematically to undertake clearly defined and familiar tasks and plan necessary resources<br>• Implements actions according to a predetermined plan, making slight adjustments if necessary and addressing some unexpected issues<br>• Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account<br>• Diagnoses and implements standard solutions to unexpected situations based on safety requirements and specified work outcomes<br>• Recognises and initiates approaches to enhance work practices, taking present and future needs and barriers to plan completion into account<br>• Reflects on ways digital systems and tools are used to achieve work goals, and recognises strategic and operational applications |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN427 Conduct site surveys to identify carrier installation requirements | ICTTEN4242A Conduct site surveys to identify carrier installation requirements | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN427 Conduct site surveys to identify carrier installation requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- evaluate existing infrastructure on an installation site
- integrate existing infrastructure into an installation design
- develop design specifications for an installation project
- engage stakeholders and carriers in design approval process.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and explain the impact of relevant legislation, codes of practice and other formal agreements that impact communications work
- describe access networks in Australia and state how it influences development of projects
- identify costs associated with carrier installations and determine estimates and operating budgets for an installation
- identify network performance information required to produce a network design
- specify current, new and emerging technologies to be considered for a communications design, including barriers that may have an impact
- define project management and its purpose and explain associated databases and project management software programs used
- explain economic and political influences and trends that impact communications installations for public and commercial enterprises
- describe a network plan and its components
- explain the purpose of having authorities and delegations required when costing and estimating financials for projects


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- explain the impact of local and international economic conditions on telecommunications installations and infrastructure, and typical challenges and limits facing technology today and on future needs
- describe the process and documentation required to collate and write project briefs, reports and project charters
- identify specific work health and safety requirements relating to site conditions and activities, including manufacturer's requirements for safe operation of equipment to be incorporated into project documentation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a network planning area, systems and deployment rules and standards
- relevant databases, licensing requirements and other site related procedures
- a location and scenario suitable to conduct a site survey.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN428 Prepare design drawings and specification for telecommunications installations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the performance outcomes, skills and knowledge required to prepare design drawings and specification for a telecommunications installation.

It applies to technical staff who are responsible for communicating installation requirements for installations, for access, building and core network installations within the Carrier Network for either carrier, commercial or industrial installations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Gather information on existing and proposed installation | 1.1 Confirm equipment installation requirements from the design brief and client<br>1.2 Inspect site to confirm plans where possible<br>1.3 Review existing plans, drawings and databases against the design brief |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Determine installation options | 2.1 Assess available installation options against client requirements and relevant legislation, codes, regulations and standards<br>2.2 Establish and assess cost of options against client's budget<br>2.3 Select most suitable option based on function, cost, standards and client deployment rules |
| 3. Prepare suitable drawings | 3.1 Prepare clear and accurate installation drawings indicating proposed facilities and services<br>3.2 Provide drawings to relevant parties and file copies for later reference according to company policies |
| 4. Prepare project specifications | 4.1 Prepare detailed design drawings for network installation<br>4.2 Prepare drawings to include scheduled and non-scheduled codes to facilitate costing |
| 5. Verify specifications with client | 5.1 Verify prepared documentation with client<br>5.2 Obtain authorisation and approval from client to proceed according to company policy<br>5.3 Issue design to the field with authority to construct |

# Foundation Skills

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.3 | • Reads and interprets plans, specifications, and other documentation from a variety of sources and consolidates information to determine requirements |
| Writing | 4.1, 4.2, 5.1-5.3 | • Prepares, edits and proofreads plans and documents to ensure clarity of meaning, and accuracy and consistency of information<br>• Documents outcomes and changes to plans using industry-relevant terminology and recognised plan symbols<br>• Develops procedural material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.1, 5.1 | • Presents complex information in formal situations using clear and convincing language, tone and pace appropriate for audience and purpose |


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| | | |
|---|---|---|
| Numeracy | 2.2, 2.3, 4.2 | • Applies financial modelling skills to identify, analyse and evaluate budgetary information, time durations and human resource allocations and costs |
| Navigate the world of work | 2.1, 5.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 5.2, 5.3 | • Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers |
| Get the work done | 1.2, 1.3, 2.1-2.3, 4.1, 5.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, search and enter data, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN428 Prepare design drawings and specification for telecommunications installations | ICTTEN4243A Prepare design drawings and specification for telecommunications installations | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN428 Prepare design drawings and specification for telecommunications installations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine installation options
- produce schematics and plan drawings
- access and interpret database and knowledge systems for network information
- produce design drawings and specifications
- verify specifications with client.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise carrier network practices, procedures and systems, including databases and deployment rules relating to telecommunications designs
- identify and apply legislation, codes of practice and other formal agreements (including schedule of rates and contract requirements) that impact work activity
- describe manufacturer's requirements for safe operation of equipment
- identify and document specific work health and safety (WHS) requirements relating to the activity and site conditions
- describe typical issues and challenges that occur on site
- establish and describe the various components of telecommunications plans, drawings and specifications.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- special purpose tools, equipment and materials
- sites where network installation may be conducted
- equipment currently used in industry
- relevant regulations and company policies
- cabling specifications that impact network installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN429 Estimate and quote for carrier telecommunications equipment installations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to prepare detailed estimates and quotes, including updating schematic drawings and specifications for carrier telecommunications equipment installations.

It applies to technical staff who provide estimates and quotes to clients for indoor and outdoor installation within a carrier network for commercial or industrial communications installations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm and update schematic drawings and specifications | 1.1 Review existing specifications and drawings for completeness<br>1.2 Prepare additional drawings and specifications for installation if required<br>1.3 Compare drawings with design brief to confirm requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Confirm all cable and locations with carrier |
| 2. Price labour, materials and other relevant items and establish availability | 2.1 Obtain quotations and delivery dates from suppliers<br>2.2 Use schedule of rates for scheduled items<br>2.3 Obtain quotes and supply dates for all non-scheduled items or activities<br>2.4 Estimate labour costs based on company practices<br>2.5 Check pricing documentation to ensure supply proposal matches carrier specification for material, quality and performance |
| 3. Estimate labour, materials and other relevant item requirements | 3.1 Prepare estimations allowing for contingencies during installation and relevant legislation, codes, regulations and standards<br>3.2 Ensure estimates will return a profit on installation where appropriate |
| 4. Prepare and confirm quote with carrier | 4.1 Prepare a project installation quote that meets carrier requirements<br>4.2 Negotiate changes and variations to meet carrier and company needs |
| 5. Establish carrier's financial arrangements | 5.1 Obtain carrier's approval for project design drawings and estimate<br>5.2 Issue design drawings and specifications for authority to construct |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1-2.5 | • Analyses and consolidates information and data from a range of sources, against defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 1.2, 1.3, 2.1, 3.1, 3.2, 4.1, 5.1, 5.2 | • Documents outcomes and changes to plans using industry-relevant terminology and recognised plan symbols<br>• Accurately records and completes organisational plans, specifications and correspondence using clear language and correct spelling, grammar and industry |


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| | | |
|---|---|---|
| | | terminology |
| Oral Communication | 1.4, 2.1, 4.2, 5.1 | • Uses collaborative and inclusive techniques including active listening and questioning and reading of verbal and non-verbal signals to convey and clarify information and confirm understanding<br>• Presents complex information in formal situations using clear and convincing language, tone and pace appropriate for the audience and purpose |
| Numeracy | 2.1-2.5, 3.1, 3.2 | • Applies financial modelling skills to identify, analyse and evaluate budgetary information, time durations and human resource allocations<br>• Performs mathematical calculations to analyse labour, costs and quantities to accurately process quotations |
| Navigate the world of work | 2.4, 3.1, 4.1 | • Ensures knowledge of legislative requirements and products is kept up-to-date to provide accurate information<br>• Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 1.4, 4.2, 5.1, 5.2 | • Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers |
| Get the work done | 1.1-1.4, 2.1-2.5, 3.1, 5.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload for efficiency and effective outcomes<br>• Makes decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, enter data, present information and communicate with others, cognisant of data security and safety |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN429 Estimate and quote for carrier telecommunications equipment installations | ICTTEN4244A Estimate and quote for carrier telecommunications equipment installations | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN429 Estimate and quote for carrier telecommunications equipment installations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- prepare detailed estimates
- update schematic drawings and specifications for telecommunications equipment installations including:
  - materials
  - labour costs
- negotiate material availability and pricing for carrier equipment and network installations with contractors
- document detailed quotes for installations that allow for changes and variations
- prepare and confirm quote and financial arrangements with carrier.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast features of carrier telecommunications equipment
- identify and summarise application of legislation, codes of practice and other formal agreements that impact the work activity
- analyse and document the manufacturer's requirements for safe operation of equipment
- describe processes and techniques required to prepare plans, estimate and quote for installations
- identify and apply specific work health and safety (WHS) requirements relating to design and site conditions
- identify and remedy typical issues and challenges of dealing with carriers
- explore allocations to be included in the design specifications and quotation


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- determine common contingencies to consider in a specification or quotation.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- special purpose tools, equipment and materials
- sites on which estimates and quotes may be conducted
- relevant databases and licensing requirements
- site-related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN430 Design infrastructure for telecommunications network installations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design supporting infrastructure for telecommunications network installations; for carrier grade switching, transmission and access equipment and associated media, power and monitoring equipment and alarm systems, fibre distribution hubs (FDHs), and remote power feeds.

It applies to field officers, design technicians or technical supervisors from carriers, contractors or other service providers working with switching, transmission and radio networks and the various transmission paths including cable, optical fibre, radio, microwave and satellite.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for design of infrastructure work | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Notify client to arrange site access and obtain plans and specifications<br>1.3 Conduct a site survey to verify infrastructure design requirements can be met<br>1.4 Identify site hazards and notify appropriate personnel to make site safe<br>1.5 Develop a design activity schedule to minimise workplace disruption and according to relevant regulation and standards<br>1.6 Discuss material supplies, safety equipment, resources, tools and test equipment with the construction group so they are available when required for installation for safe work practice |
| 2. Design network equipment infrastructure | 2.1 Prepare infrastructure designs according to electrical safety and work health and safety (WHS) and environmental requirements after consultation with operational staff<br>2.2 Design metal superstructure to house equipment according to manufacturer's specifications<br>2.3 Design cable pathways, including cable distribution frames and support materials, according to specifications |
| 3. Design power infrastructure | 3.1 Design power supply and earthing according to specifications and standard electrical practices<br>3.2 Design battery and rectifier equipment for project according to manufacturer's and WHS requirements<br>3.3 Design high Ohmeric distribution (HOD) and associated power distribution systems |
| 4. Design DC power distribution | 4.1 Design power distribution work to meet electrical safety requirements and certifications<br>4.2 Monitor electrical work to ensure compliance with installation plan<br>4.3 Identify and rectify faults where possible or escalate according to enterprise policy |
| 5. Restore site and complete documentation | 5.1 Attach infrastructure labels and designations according to enterprise requirements<br>5.2 Complete inspection sheets and declare asset ready for next stage of installation using appropriate sign off documentation<br>5.3 Clean up and prepare site in readiness for next installation phase<br>5.4 Notify carrier and obtain sign-off |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3 | • Analyses and consolidates information and data from a range of sources, against defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 1.2, 1.4, 2.1-2.3, 3.1-3.3, 4.1, 5.1, 5.2, 5.4 | • Prepares and produces diagrammatic models and associated documents that convey design parameters<br>• Develops procedural material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.2, 1.4, 1.6, 5.4 | • Uses collaborative and inclusive techniques including active listening and questioning and reading of verbal and non-verbal signals to convey and clarify information and confirm understanding |
| Numeracy | 1.5, 2.2-2.4, 3.1-3.3, 4.1 | • Applies design modelling skills to identify, analyse and evaluate budgetary information, time durations and human resource allocations<br>• Performs mathematical calculations to analyse and design telecommunications architecture, labour, costs and material quantities |
| Navigate the world of work | 1.4-1.6, 2.1-2.3, 3.1-3.3, 4.1-4.3, 5.1, 5.2 | • Accepts responsibility and ownership for the task and makes decisions on completion parameters and the need of coordination with others<br>• Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements<br>• Identifies and acts on issues that contravene relevant policies, procedures and legal requirements |
| Interact with others | 1.2, 1.6, 5.4 | • Selects and uses appropriate conventions and protocols when communicating with clients and co-workers in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection and build rapport with clients and co-workers |
| Get the work | 1.1, 1.3-1.5, 2.1-2.7, 3.1, 3.2, 4.1-4.3, 5.1, | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects |


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| | | |
|---|---|---|
| done | 5.3, 5.4 | with others, taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules and reviews and changes them to meet new demands and priorities<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response, applying problem-solving processes in determining a solution |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN430 Design infrastructure for telecommunications network installations | ICTTEN4245A Design infrastructure for telecommunications network installations | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN430 Design infrastructure for telecommunications network installations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- determine potential earthing locations, cable routes, cables trays, data cabinets, telecommunication enclosures, distributors
- design metal superstructure
- design protective earth and functional earth installations
- design power infrastructure
- design, monitor and rectify faults in DC power distribution
- design locations and facilities for access network infrastructure.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate capabilities and performance of cabling types, connectors and cabling structures for given design parameters
- explore common carrier telecommunications applications and related equipment and infrastructure suited to a design
- determine the most appropriate connections to carrier infrastructure or equipment
- identify and recognise compliance requirements of current legislation relating to installation of telecommunications equipment and connection to carrier services
- evaluate environmental impacts including options for green information and communications technology (ICT) installations for network topologies, interfaces and interconnect solutions
- define work health and safety (WHS) requirements for the design to ensure a safe installation plan including:
  - confined spaces


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  - electrical safety
  - working at heights
  - manual handling and lifting
  - materials handling
  - physical hazards
- evaluate and summarise network and transmission supplies and equipment required for a design
- determine power requirements and electrical safety for a specific design
- specify warranty information for equipment supplies and contractor work guarantees
- devise an appropriate survey to determine design criteria for a given site
- explore and evaluate the nature of tools and equipment required for installation of the design
- consider power distribution work requirements and the impact on the design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- special purpose tools, equipment and materials
- site where installation of supporting infrastructure may be conducted
- plant, tools and equipment currently used in industry
- relevant regulatory and equipment documentation that impact work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN431 Design a dense wavelength division multiplexing system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the performance outcomes, skills and knowledge required to design a dense wavelength division multiplexing (DWDM) system in optical networks.

It applies to telecommunications technical staff who design systems for installation of long haul or metropolitan area DWDM equipment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Obtain access to worksite safely and with authority from site owner | 1.1 Obtain and review DWDM installation brief<br>1.2 Determine site access requirements<br>1.3 Notify parties if necessary to arrange site access and discuss DWDM installation requirements<br>1.4 Assess site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Prepare to install design DWDM units | 2.1 Survey location for DWDM installation and scope installation parameters<br>2.2 Identify suitable location for DWDM equipment racks<br>2.3 Determine number and location of shelves and cards in racks<br>2.4 Determine capacity of optical distribution frames (ODFs), patching and network management system (NMS) connections for the installation<br>2.5 Determine power feed options |
| 3. Design DWDM units and associated cabling | 3.1 Design DWDM racks, including locations and layout<br>3.2 Examine standards, practices and requirements for designing DWDM systems<br>3.3 Design DWDM shelf and card positions from customer and manufacturer documents<br>3.4 Design supporting patch panel and jumpering schemes<br>3.5 Include appropriate ancillary equipment and connections in design specifications<br>3.6 Prepare detailed design drawings for racks, shelves and cards from manufacturer and carrier documents<br>3.7 Prepare detailed design drawings for patching, jumpering and power feeds from manufacturer and carrier documents |
| 4. Review design for compliance with standards and legislation | 4.1 Confirm DWDM installation design meets the brief<br>4.2 Review installation design to ensure compliance with requirements of federal, state and local regulations, relevant legislation, codes and standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 3.2, 3.3, 3.6, 3.7, 4.1, 4.2 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine design |


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| | | |
|---|---|---|
| | | requirements |
| Writing | 1.3, 3.1, 3.3-3.7 | • Prepares and produces dynamic material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations<br>• Produces plans using industry-relevant terminology and recognised industry symbols |
| Oral Communication | 1.3 | • Uses collaborative and inclusive techniques, including active listening and questioning and reading of verbal and non-verbal signals, to convey and clarify information and confirm understanding |
| Numeracy | 2.3-2.5, 3.1, 3.3, 3.4 | • Uses highly-developed numeracy skills to interpret complex information, perform calculations and record outcomes for designs |
| Navigate the world of work | 1.4, 3.2, 4.2 | • Works independently or with others to make decisions to achieve organisation outcomes<br>• Takes full responsibility for following policies, procedures and legislative requirements, and identifies organisational implications of new legislation or regulation |
| Interact with others | 1.3, 4.1 | • Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.1, 1.2, 1.4, 2.1-2.5, 3.1, 3.3, 3.6, 3.7, 4.1 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others taking into account capabilities, efficiencies and effectiveness<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Responds intuitively to problems requiring immediate resolution, drawing on past experiences to focus on the cause of a problem<br>• Uses and investigates new digital technologies and applications to manage and manipulate data and communicate effectively with others, in a secure and stable digital environment |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN431 Design a dense wavelength division multiplexing system | ICTTEN4246A Design a dense wavelength division multiplexing installations | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN431 Design a dense wavelength division multiplexing system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- design a dense wavelength division multiplexing (DWDM) system and associated cabling according to plans and specifications
- design DWDM power and ground connections
- complete and confirm installation design report.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise principles of operation of a DWDM
- recognise electrostatic discharge and apply work practices to minimise damage to equipment
- recognise and describe the function and types of optical fibre connectors and characteristics of optical fibre
- describe specific work health and safety (WHS) requirements that impact the safe inspection of optical connectors
- recognise and apply principles of safe measurement of optical power for laser transmission systems
- describe tools and ancillary equipment commonly used for DWDM systems
- recognise and describe common power wiring faults.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- special purpose tools, equipment and materials
- a suitable site for DWDM equipment installation
- tools and equipment required for installation
- a range of optical fibres to suit the installation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN501 Provide consultancy and technical support in the customer premises equipment sector

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to provide advice to clients wishing to install or upgrade telecommunications equipment on their premises.

It applies to individuals who help organisations deploy converging technologies integrating data, wireless, optical and internet protocol (IP) networks within a customer premises in domestic, commercial or industrial installations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan to provide consultancy and technical support in the CPE sector | 1.1 Obtain consultancy requirements from client<br>1.2 Establish relationship with industry experts to maintain currency with latest industry innovations in the customer premises' equipment (CPE) sector<br>1.3 Access sources of product and technical information relating to change and innovation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Access and evaluate latest data relating to change and innovation in the CPE sector for company use within an appropriate timeframe |
| 2. Assess customer needs | 2.1 Develop knowledge and understanding of the client's business to provide an accurate solution according to requirements<br>2.2 Investigate communication requirements including networks, based on business needs and demands<br>2.3 Ascertain client's physical and financial parameters<br>2.4 Present reports and recommendations within client's timeframes |
| 3. Provide consultancy and expert advice | 3.1 Provide timely and accurate expert consultancy and advice to company staff and clients<br>3.2 Provide communication solutions that meet client's requirements and relevant legislation, codes, regulations and standards<br>3.3 Provide alternative solutions for clients where their needs cannot be better met in an innovative way<br>3.4 Provide a report on advice and solutions that match both the physical and financial demands of the client<br>3.5 Consult with client for an agreed solution |
| 4. Control and manage product and technical information | 4.1 Provide all relevant personnel with the latest product and technical information<br>4.2 Monitor the information flow process to ensure appropriate personnel have access to the latest data<br>4.3 Provide the client with final consultancy reports and recommendations |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.4, 3.2 | • Recognises and interprets technical and regulatory specifications and related documentation to determine job requirements |
| Writing | 3.1, 3.2, 3.4, 3.5 | • Prepares specific expert information which conveys clear recommendations and uses terminology |


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| | | |
|---|---|---|
| | | appropriate to present to relevant personnel |
| Oral Communication | 3.1, 3.2, 3.5 | • Liaises with customers to ensure requirements are properly understood and can be achieved within established timeframes<br>• Uses listening and questioning skills to confirm understanding of requirements |
| Numeracy | 3.4 | • Interprets numerical information and applies mathematical calculations for dimensioning, cost and financial considerations |
| Navigate the world of work | 2.1, 3.2 | • Develops understanding related to current role using a range of formal and informal opportunities to develop knowledge skills and insight<br>• Keeps up-to-date with relevant legislation and regulations and considers implications of these when providing solutions in the workplace |
| Interact with others | 1.1, 1.2, 2.4, 4.1-4.3 | • Considers purpose and possible actions to be taken as a result of any work related communication<br>• Selects and uses communication conventions and protocols to suit purpose and audience<br>• Recognises importance of building rapport to establish effective working relationships |
| Get the work done | 1.3, 1.4, 2.2, 2.3, 3.3 | • Understands key principles and concepts underpinning design and operation of digital systems and tools<br>• Takes responsibility for planning and organising site access arrangements and sequencing own workload, identifying ways of combining elements for greater efficiency<br>• Recognises potential of new and alternative approaches to enhance work practices and outcomes, and accepts the need to consider change<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues, and using lateral thinking processes to generate possible communications solutions |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN501 Provide consultancy and technical support in the customer premises equipment sector | ICTTEN5024A Provide consultancy and technical support in the customer premises equipment sector | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN501 Provide consultancy and technical support in the customer premises equipment sector

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- provide consultancy advice related to a full range of customer premises' equipment (CPE) products including:
  - product models and equipment types
  - peripherals
  - facilities, including network facilities
  - system features
- provide alternative solutions where customer's needs cannot be met precisely
- prepare clear and concise reports to customers complete with recommendations and supporting data, including full financial considerations
- provide regular updates to both company personnel and clients as to the latest product and technical information.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise common customer telecommunications applications and related equipment
- outline connections to carrier infrastructure or equipment
- identify and describe current legislation relating to installation of telecommunications equipment and connection to carrier services
- explain the purpose of enterprise operations and policies
- summarise internet protocol (IP) networks
- outline new and emerging telecommunications technologies
- define 'customer premises' equipment.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site with network or computer layout documentation and premises plans
- network components
- equipment specifications
- organisational guidelines
- business plan or model
- relevant legislation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN502 Design a telecommunications project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge to scope requirements, assess land site suitability, arrange site acquisition, and produce building design plans for a telecommunications building project.

It applies to individuals working for private and public organisations who combine technical design and organisational skills to apply planning principles for provisioning of the various building projects and technologies within a telecommunications network to meet future customer demands.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope design options | 1.1 Determine the nature, purpose and type of new facilities in the proposed project from project specifications obtained from planners<br>1.2 Analyse project brief to scope requirements of the project and consider design options with consideration to legislation governing carriers in Australia |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Evaluate design requirements to determine optimal site selection for the project to house facilities<br>1.4 Arrange an environmental impact study (EIS) to be conducted on the selected site with project requirements to assess suitability of the site |
| 2. Evaluate and arrange land acquisition | 2.1 Evaluate findings of the EIS to determine suitability of the land for the project<br>2.2 Prepare a justification report on a favourable EIS and consult affected property owners to establish a base for negotiation<br>2.3 Determine potential for land acquisition or purchase from analysis of previously gathered data and EIS findings and ensure compliance with regulations and legislation |
| 3. Analyse area and select design option | 3.1 Analyse physical attributes of the area, possible environmental impacts and previously collected data to prepare design options<br>3.2 Prepare field sketch according to enterprise requirements and develop solutions to any obvious physical impediment to construction<br>3.3 Produce design options for the area that are viable for the enterprise and recommend a preferred option with justifications<br>3.4 Evaluate selection of preferred option to ensure enterprise business strategy outcomes and policies are satisfied |
| 4. Notify interested parties | 4.1 Assess resources available for project implementation to ensure works are within the enterprise's schedule<br>4.2 Notify interested parties of the type, extent and duration of proposed works according to enterprise policy<br>4.3 Obtain all required written permission from interested parties and forward to those who will carry out the job |
| 5. Produce design plan and documentation | 5.1 Prepare design plan to enterprise requirements including relevant geographical and topological information<br>5.2 Indicate location and specification of works and network equipment accurately and clearly<br>5.3 Specify resources needed to undertake the project<br>5.4 Update enterprise information systems according to enterprise guidelines and industry practice<br>5.5 Produce a complete design report and present to management for approval |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.3, 3.2, 3.4, 4.2, 5.4 | • Identifies, analyses and evaluates complex text to determine legislative and business requirements to assist with project planning |
| Writing | 2.2, 3.2, 3.3, 4.2, 5.1-5.5 | • Prepares written reports and workplace documentation that communicate complex information clearly and effectively |
| Oral Communication | 2.2, 4.2, 5.2, 5.3 | • Clearly articulates requirements to internal and external personnel on technical and operational matters using language appropriate to audience and environment<br>• Employs listening and questioning techniques to confirm understanding |
| Navigate the world of work | 1.2, 2.3 | • Keeps up-to-date with legislation and regulations affecting work and considers implications of these when negotiating and planning work |
| Get the work done | 1.1, 1.4, 3.1, 3.4, 4.1, 4.3 | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Applies formal processes when planning tasks, producing plans with logically sequenced steps, reflecting the needs of others<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options and seeking input and advice from others before taking action when necessary |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN502 Design a telecommunications project | ICTTEN5037A Design a telecommunications project | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN502 Design a telecommunications project

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- scope design options
- recommend acquisition of land
- prepare justification report including evaluation of environmental impact study (EIS) findings
- produce design options
- prepare completed building design plan for a telecommunications project.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain access networks
- describe building codes and regulations relating to telecommunications installations
- appraise computer aided design (CAD) software packages used for telecommunications designs
- define core networks and specify the foundation design principles
- describe the Environmental Protection Act and its impact on designing a telecommunications project
- explain implications of heritage listings on a site
- summarise information found in EISs
- explain network performance and capacity
- outline networks planning and procedures
- explain site surveys
- describe acts and regulations attributed to telecommunications.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which projects may be designed
- CAD drawing facilities
- relevant databases, legislative requirements and other site and project related documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN503 Design an electronic system for a telecommunications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design, and confirm specifications and compatibility for additional telecommunications network equipment.

It applies to individuals working as field officers, technicians or technical supervisors for carriers, contractors or other service providers who assess the need for additional equipment, including voice over internet protocol (VoIP), biometric identification, radio frequency identification (RFID) and security system equipment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate system needs | 1.1 Determine need for additional electronic equipment from telecommunications project plan<br>1.2 Specify purpose of equipment and ascertain need for additional network equipment with customer |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Analyse network and select design option | 2.1 Analyse possible impacts on network and network service requirements<br>2.2 Generate options for system design that are realistic for the enterprise and network<br>2.3 Evaluate and select preferred option, based on enterprise business strategy outcomes, service policy and compliance with relevant legislation<br>2.4 Discuss and confirm selected option with customer |
| 3. Assess system compatibility | 3.1 Assess compatibility of each equipment unit and intended use with other installed units, from system plans, equipment manuals, installation environment and industry knowledge<br>3.2 Modify design accordingly<br>3.3 Provide customer with design and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.3, 3.1 | • Identifies, analyses and evaluates information to determine legislative and technical requirements to assist with project planning |
| Writing | 1.2, 3.2 | • Prepares written reports and workplace documentation that communicates complex information clearly and effectively |
| Oral Communication | 1.2, 2.4 | • Liaises with customers and technical staff to ensure requirements are properly understood<br>• Employs listening and questioning techniques to confirm understanding |
| Navigate the world of work | 2.3 | • Keeps up-to-date with relevant legislation and considers implications of these when planning work |
| Interact with others | 3.3 | • Selects and uses appropriate conventions and protocols when communicating with customers, and in a range of work contexts |


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| | | |
|---|---|---|
| Get the work done | 2.1-2.3, 3.1 | • May invest time in developing and shaping several options before making a final choice, using a combination of lateral and analytical thinking to tailor and strengthen an idea to suit needs, resources and constraints<br>• Uses formal and informal processes to monitor implementation of solutions, and reflects on outcomes<br>• Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Applies formal processes when planning tasks, producing plans with logically sequenced steps, reflecting the needs of others<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options, and seeking input and advice from others before taking action when necessary |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN503 Design an electronic system for a telecommunications network | ICTTEN5038A Design an electronic system for a telecommunications network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN503 Design an electronic system for a telecommunications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- evaluate system need for additional electronic equipment and design options
- analyse network and design systems
- assess system compatibility.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- review electrical and optical properties of telecommunications systems
- outline integration, compatibility and interoperability of equipment
- summarise legislation and licensing relevant to installation of telecommunications equipment including spectrum allocation
- define power requirements and electrical safety issues associated with electronic system design
- outline transmission type and signals that may be encountered.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- telecommunications network where additional equipment design may be conducted
- relevant regulatory and equipment documentation that impacts electronic system design.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN504 Acceptance test new systems and equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to ensure new system readiness by inspecting and testing equipment to confirm compliance and performance.

It applies to individuals working as field officers, technicians or technical supervisors for carriers, contractors or other service providers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to conduct acceptance testing | 1.1 Obtain installation and commissioning documents and planning specifications from appropriate personnel to ensure the installed system is as planned and specified<br>1.2 Visually inspect new installation and verify compliance of the system against relevant legislation, codes, regulations and standards<br>1.3 Select and obtain required test equipment for suitability of acceptance testing<br>1.4 Prepare acceptance schedule and test criteria in consultation with |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | appropriate personnel |
| 2. Conduct acceptance testing | 2.1 Undertake and analyse performance tests safely to ensure measurements meet with predetermined specifications and approved operating margins<br>2.2 Verify performance levels to within tolerance specifications<br>2.3 Test protection mechanisms to ensure performance criteria meets the specified standard<br>2.4 Test alarms for satisfactory operation<br>2.5 Refer identified problems to appropriate personnel for remedial action<br>2.6 Record all acceptance test procedures and results |
| 3. Complete administrative tasks | 3.1 Complete acceptance documentation including recommendations<br>3.2 Notify appropriate personnel and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1, 2.2 | • Identifies, analyses and evaluates information to determine regulatory and technical requirements to assist with project planning |
| Writing | 1.4, 2.6, 3.1 | • Prepares written reports and workplace documentation that communicates complex information clearly and effectively |
| Oral Communication | 1.4 | • Liaises with appropriate personnel and customers to ensure requirements are properly understood<br>• Participates in verbal exchanges employing listening and questioning techniques to confirm understanding |
| Numeracy | 2.1, 2.2 | • Uses mathematical formulae to calculate measurements, analyse results and make adjustments to equipment and settings |
| Navigate the world of work | 1.2 | • Keeps up-to-date with relevant legislation and considers implications of this when planning work, with specific reference to safety |


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| | | |
|---|---|---|
| Interact with others | 1.1, 1.4, 2.5, 3.2 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts<br>• Collaborates and cooperates with others to achieve required outcomes |
| Get the work done | 1.1, 1.3, 2.3-2.5 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant information, test strategies and resources<br>• Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options, and seeking input and advice from others before taking action when necessary |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN504 Acceptance test new systems and equipment | ICTTEN5058A Acceptance test new systems and equipment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN504 Acceptance test new systems and equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- inspect new installation and verify compliance against installation plans
- prepare acceptance schedule and test criteria
- undertake relevant acceptance tests and analysis
- comply with specified performance criteria, related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline cabling, terminations and supporting structures that may be encountered in the system under inspection
- explain common performance levels and standards
- explain electrical and or optical properties to be measured
- consider WHS issues that impact testing systems and equipment
- evaluate typical network topologies, switching, routing and transmission techniques
- evaluate transmission type and signals that may be encountered
- explore various types of test equipment suitable for testing to be performed.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:


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- sites where acceptance tests may be conducted
- testing equipment currently used in industry
- relevant regulatory and equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN505 Commission telecommunications network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to check plans, obtain and properly handle equipment and supplies, undertake tests, and complete administrative tasks.

It applies to individuals working as field officers, technicians or technical supervisors for carriers, contractors or other service providers

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for commissioning procedures | 1.1 Prepare for work following work health and safety (WHS) requirements<br>1.2 Organise resources based on existing and potential site hazards<br>1.3 Contact network operations personnel for site access and network specifications<br>1.4 Determine the type and complexity of the network equipment from specifications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Establish commissioning dates and confirm with all parties<br>1.6 Determine commissioning parameters according to specification, and establish planned outage if required<br>1.7 Obtain test equipment and check for suitability and accuracy<br>1.8 Produce a preliminary commissioning plan according to manufacturer's instructions and company guidelines for discussion with the customer<br>1.9 Inform affected customers of impending action and likely timing and impact by the work |
| 2. Organise planned outages if necessary | 2.1 Negotiate outage times with appropriate groups and affected customers to minimise any disruptions<br>2.2 Develop contingency plans if required and arrange for emergency communications<br>2.3 Notify alarm management centre of action planned<br>2.4 Obtain authority to proceed from relevant control centre and notify customers affected by the outage |
| 3. Complete installation procedures of network equipment | 3.1 Install applications programmes and management data according to specification to complete installation procedures<br>3.2 Complete all hardware connections according to commissioning instructions<br>3.3 Undertake all specified performance tests to ensure operation meets all prescribed parameters and specifications as detailed in the original design brief<br>3.4 Undertake tests to verify compatibility between the hardware and software<br>3.5 Correct performance defects or bring to the attention of designers for corrective action |
| 4. Complete commissioning procedures with network management | 4.1 Test alarms in conjunction with network management and operational groups to maintain network integrity<br>4.2 Simulate traffic tests through the new installation to emulate a live network<br>4.3 Test installed specific equipment features and operations administration maintenance system according to instructions<br>4.4 Diagnose, repair or escalate faults detected to the appropriate area when fault cannot be clearly diagnosed or repaired<br>4.5 Initiate vendor-related tests where required |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 5. Finalise commissioning tasks | 5.1 Complete administrative tasks as required by enterprise<br>5.2 Undertake operational staff training where required<br>5.3 Restore site to customer's satisfaction<br>5.4 Notify customer and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 5.2 | • Accepts new learning challenges, undertaking further training when required to contribute to ongoing organisational improvement |
| Reading | 1.1, 1.4, 1.6, 1.8, 3.1-3.3, 4.3 | • Identifies, analyses and evaluates information to determine regulatory and technical requirements to assist with project planning |
| Writing | 1.3, 1.5, 1.8, 1.9, 2.1-2.4, 5.1 | • Prepares written reports and workplace documentation that communicates complex information clearly and effectively |
| Oral Communication | 1.3, 1.5, 1.9, 2.1-2.4 | • Liaises with appropriate technical personnel and customers to ensure requirements are properly understood<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 3.3, 3.4, 4.1, 4.3 | • Uses mathematical formulae to make calculations and interpret test equipment settings and readings |
| Navigate the world of work | 1.1 | • Keeps up-to-date with relevant legislation and considers implications of this when planning work, with specific reference to safety |
| Interact with others | 2.4, 5.4 | • Selects and uses communication conventions and protocols to suit purpose and audience |
| Get the work done | 1.2, 1.4, 1.5, 1.7, 2.2, 3.1- 3.5, 4.1, 4.2-4.5, 5.1, 5.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant information, test strategies and resources<br>• Understands key principles and concepts underpinning |


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| | | |
|---|---|---|
| | | design and operation of digital systems and tools and applies these as required<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options and seeking input and advice from others before taking action when necessary |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN505 Commission telecommunications network equipment | ICTTEN5059A Commission telecommunications network equipment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN505 Commission telecommunications network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- interact with enterprise personnel, customers and other contractors, keeping a customer focus and consideration of customer needs
- produce an outage management plan and contingency plan
- negotiate network activity and timing of commissioning
- commission networking equipment to plan or specification
- implement test plan, and interpret and analyse results against expected outcomes
- test alarms and alarm regime
- analyse faults, problems and anomalies and provide solutions
- comply with all related work health and safety (WHS) requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline electrical and/or optical properties to be measured
- evaluate a range of networking equipment and their operation
- consider legislation and licensing that govern installation of telecommunications equipment
- define spectrum allocation
- outline network operation procedures
- summarise power requirements and electrical safety
- describe transmission types and signals that may be encountered in telecommunications networks
- summarise the various tests and test equipment required for commissioning.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which installation and commissioning procedures can be conducted
- relevant regulatory and equipment documentation impacting commissioning
- testing equipment currently used in industry.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN506 Integrate new systems and equipment into the telecommunications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to follow predetermined procedures to ensure operability of the system while minimising impact on affected customers.

It applies to individuals working as field officers, technicians or technical supervisors, for telecommunications carriers, contractors or other service providers, who install new, additional and replacement equipment in telecommunications systems and networks, including support and administrative infrastructures for integration of new and emerging internet protocol (IP) based technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan integration strategy | 1.1 Determine nature and scope of the integration activity of systems from appropriate personnel<br>1.2 Prepare an integration management plan in agreement with |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | appropriate personnel<br>1.3 Obtain outage management plan if available, otherwise prepare a contingency plan to ensure the system integration goes according to a plan<br>1.4 Identify affected systems, traffic and customers<br>1.5 Notify alarm management centre of action planned and obtain authority to proceed<br>1.6 Notify customers affected by the outage of time and likely duration |
| 2. Integrate and test new system in the network | 2.1 Plan and conduct activities over a set of integration phases safely and according to the integration management plan<br>2.2 Load operational software according to specification to ensure interoperability of new and existing system<br>2.3 Undertake tests by simulating network traffic and ensure test results are recorded and stored according to enterprise requirements<br>2.4 Analyse test results and ensure established parameters have all been met<br>2.5 Evaluate problems during the testing phase and rectify or escalate procedure<br>2.6 Analyse alarms for fault conditions in conjunction with the network management centre<br>2.7 Locate and detect faults within capability, or escalate according to enterprise policy<br>2.8 Check operations administrative maintenance system and alarms are connected according to instruction manual<br>2.9 Activate new alarms and deactivate old alarms |
| 3. Complete administrative tasks | 3.1 Complete integration records according to manufacturer's specification and enterprise policy and make recommendations for improvement for future planning<br>3.2 Notify appropriate personnel of project completion and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2-2.4, 2.8, 3.1 | • Identifies, analyses and evaluates information to determine regulatory and technical requirements to assist with project planning |
| Writing | 1.2-1.6, 2.3, 3.1 | • Prepares written reports and workplace documentation that communicate complex information clearly and effectively |
| Oral Communication | 1.1, 1.2, 1.5, 1.6 | • Participates in verbal exchanges with personnel and customers to ensure requirements are properly understood<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 2.4 | • Uses mathematical formulae to calculate measurements, analyse results and make adjustments to equipment and settings |
| Navigate the world of work | 2.1, 2.7, 3.1 | • Keeps up-to-date with relevant legislation and considers implications of this when planning work, with specific reference to safety<br>• Adheres to organisational procedures and protocols in completing work tasks |
| Interact with others | 1.1, 1.2, 1.5, 1.6, 3.2 | • Selects and uses communication conventions and protocols to suit purpose and audience |
| Get the work done | 1.3, 1.4, 2.1, 2.2, 2.3, 2.5-2.9 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant logistical requirements, test strategies and resources<br>• Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options, and seeking input and advice from others before taking action when necessary |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN506 Integrate new systems and equipment into the telecommunications network | ICTTEN5060A Integrate new systems and equipment into the telecommunications network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN506 Integrate new systems and equipment into the telecommunications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- develop a contingency plan
- implement an integration management plan
- test systems and equipment and associated features being integrated
- apply enterprise escalation and outage procedures
- negotiate procedures and activity on the network and timing of integration
- integrate new systems and equipment to plan and specifications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise connections to carrier infrastructure or customer interface units (CIU)
- describe electrical and/or optical properties to be measured
- consider health and safety issues, including electrical, optical and electromagnetic radiation (EMR) when working with telecommunications networks
- describe telecommunication network equipment and emerging technology networks
- evaluate suitable tests and test equipment types
- explain typical performance parameters and faults that may be encountered in network equipment and related connection and transmission media.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which integration procedures can be conducted
- relevant regulatory and equipment documentation that impacts integration
- testing equipment currently used in industry
- capacity to simulate network traffic
- a network and equipment for integration
- equipment and systems manuals, specifications and enterprise policies.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN507 Cut over new and replacement network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to check plans, obtain equipment and supplies, initiate tests and complete administrative tasks.

It applies to individuals who may be field officers, technicians or technical supervisors for carriers, contractors or other service providers, who are involved in fast changeover of new and existing equipment in telecommunications networks, including digital switching and transmission, wireless and optical networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan cut over strategy | 1.1 Determine the nature and scope of cut over activity from appropriate personnel<br>1.2 Prepare a cut over management plan in agreement with appropriate personnel and in line with regulations and service obligations<br>1.3 Obtain outage management plan if available, otherwise prepare a |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | contingency plan to ensure system integration proceeds according to plan<br>1.4 Notify alarm management centre of action planned and obtain authority to proceed<br>1.5 Notify customers affected by the outage of time and likely duration |
| 2. Cut over and test equipment into service | 2.1 Perform cut over activities in a safe manner with minimal interruption to service and according to the cut over management plan<br>2.2 Conduct tests specified in cut over plan, according to technical manuals and specifications<br>2.3 Record and assess test results and ensure problems identified during cut over are rectified or escalated according to enterprise procedures<br>2.4 Analyse alarms for fault conditions in conjunction with network management centre<br>2.5 Enact contingency plans in the event of major problems during cut over |
| 3. Complete administrative tasks | 3.1 Complete test result sheets and hand over to operational personnel according to enterprise requirements<br>3.2 Ensure site is cleaned and ready for operational staff<br>3.3 Complete work documentation and administrative tasks and forward to appropriate area according to enterprise policy<br>3.4 Notify appropriate personnel of project completion and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1-2.3, 3.1, 3.3 | • Identifies, analyses and evaluates equipment specifications, equipment readings and settings |
| Writing | 1.1, 1.3, 2.3, 3.1, 3.3 | • Prepares written reports and workplace documentation that communicate complex information clearly and |


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| | | |
|---|---|---|
| | | effectively |
| Oral Communication | 1.1, 1.2, 1.5 | • Participates in verbal exchanges with personnel and customers to ensure requirements are properly understood<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 2.3 | • Uses mathematical formulae to calculate measurements, analyse results and make adjustments to equipment and settings |
| Navigate the world of work | 2.1, 3.2, 3.3 | • Works independently and collectively within broad parameters, with a strong sense of responsibility and ownership of goals, plans, decisions and outcomes, with specific reference to safe working practices and requirements |
| Interact with others | 1.1, 1.2, 1.4, 1.5, 3.1, 3.4 | • Considers purpose and possible actions to take as a result of any work related communication<br>• Selects appropriate communication protocols and conventions in a broad range of work contexts, with a growing awareness of subtle impacts of choices made |
| Get the work done | 1.1, 1.3, 2.2-2.5, 3.3, 3.4 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context, to identify relevant logistic requirements, test strategies and resources<br>• Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options and seeking input and advice from others before taking action when necessary |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN507 Cut over new and replacement network equipment | ICTTEN5061A Cut over new and replacement network equipment | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN507 Cut over new and replacement network equipment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- develop and implement a cut over plan and an outage plan
- develop a contingency plan
- apply enterprise escalation and outage procedures
- cut over and test network equipment within an industry acceptable time period.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain electrical and optical properties to be measured
- determine appropriate legislation and licensing surrounding installation of telecommunications equipment
- summarise power requirements and electrical safety
- evaluate types of test equipment and testing procedures suitable for tests to be performed
- explain transmission hierarchy and switching principles
- outline transmission type and signals that may be encountered.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a network and equipment for cut over
- equipment currently used in industry


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- systems manuals, specifications and enterprise policy.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN508 Locate, diagnose and rectify complex faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to identify faults in upstream or downstream services that may require involvement of third party providers.

It applies to individuals working as telecommunications officers, installers, maintenance staff, and manufacturer or equipment specialists. They must work closely with other personnel and rectify technical faults in a timely manner.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to locate and rectify complex faults | 1.1 Prepare for given work according to relevant legislation, codes, regulations and standards<br>1.2 Notify client to arrange site access<br>1.3 Obtain and interpret results of any action taken by first fault repairer<br>1.4 Obtain fault history to establish any fault patterns |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Obtain all available data on system equipment to assist with fault diagnosis<br>1.6 Develop strategies for identification and repair in discussion with other engineering and technical personnel<br>1.7 Obtain tools and test equipment relevant to the identified system type and fault<br>1.8 Set up equipment according to manufacturer's specifications and safe work practices and reconfigure as required |
| 2. Locate and diagnose faults | 2.1 Use methodical and safe work practices suitable for system and problem type to identify system fault<br>2.2 Isolate and test fault progressively to remove likely variables from assessment, and record test results<br>2.3 Refer faults that may involve third party services, if required<br>2.4 Diagnose fault in the shortest time possible with minimum inconvenience to other client activity<br>2.5 Provide regular progress reports to clients<br>2.6 Raise fault identification to a national support level within a specified timeframe, if required<br>2.7 Undertake guidance from national support in fault diagnosis as required<br>2.8 Negotiate any necessary system downtime with clients |
| 3. Rectify fault | 3.1 Determine options to rectify fault including any system downtime and present to client for decision<br>3.2 Rectify fault totally, partially or provide temporary solution<br>3.3 Replace or repair faulty parts or equipment according to service agreement<br>3.4 Reprogram equipment as required<br>3.5 Dismantle and remove any temporary service in a safe and efficient manner where appropriate<br>3.6 Perform repair under national support guidance as required<br>3.7 Perform routine checks to identify likelihood of further or likely problems<br>3.8 Rectify any further problems identified, or bring to the attention of the customer for decision on further action |
| 4. Clean up worksite and complete records | 4.1 Produce a report on fault diagnosis and rectification<br>4.2 Remove and dispose of waste and debris from worksite |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | according to environmental requirements<br>4.3 Ensure changes made to work area during fault repair are restored to client's satisfaction<br>4.4 Complete all records, and explain and justify faults and rectification action taken |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.8, 3.3 | • Identifies, analyses and evaluates technical documentation including codes, standards and regulatory information |
| Writing | 1.2, 2.2, 2.5, 2.8, 3.8, 4.1, 4.4 | • Prepares clear and concise written reports and workplace documentation, incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.2, 1.6, 2.5, 2.8, 3.8, 4.3 | • Liaises and negotiates with clients, repairers and technical staff using appropriate strategies to extract main ideas and information from oral texts regarding technical and operation matters<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 2.1, 2.2 | • Uses mathematical formulae to interpret technical data, such as specifications of equipment operations |
| Navigate the world of work | 1.1, 3.5, 4.2 | • Takes personal responsibility for adherence to legal and regulatory responsibilities and organisational polices and protocols relevant to own work |
| Interact with others | 2.6-2.8, 3.1, 3.8 | • Selects appropriate protocols and conventions for communicating with technical personnel and customers in a broad range of work contexts<br>• Collaborates with others to negotiate agreeable outcomes |
| Get the work done | 1.3-1.8, 2.1-2.4, 3.1-3.4, 3.6-3.8 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify and rectify technical faults |


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| | | |
|---|---|---|
| | | • Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options, and seeking input and advice from others before taking action when necessary |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN508 Locate, diagnose and rectify complex faults | ICTTEN5083A Locate, diagnose and rectify complex faults | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN508 Locate, diagnose and rectify complex faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- methodically analyse fault details and diagnose potential faults
- conduct advanced tests to determine complex network faults
- isolate and locate faults logically
- rectify faults using appropriate organisational procedures and work health and safety (WHS) requirements
- comply with all related WHS requirements and work practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain fault escalation procedures
- describe the most appropriate fault-finding techniques and test equipment required
- identify fault types and rectification methods
- list safety requirements and standards
- define the function of service agreements
- outline types of networks and equipment including:
  - access
  - broadband deployment
  - cabling
  - customer premises' equipment (CPE)
  - internet protocol (IP) networks for enterprise and customer systems and installations
  - local area networks (LANs)
  - telephony


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  - wide area networks (WANs)
- outline workplace environment and practices.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which fault diagnostics may be conducted
- testing equipment currently used in industry
- relevant regulatory and equipment documentation impacting complex fault repairs.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN509 Provide expert advice and support on complex faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to methodically diagnose complex faults, and organise repair or replacement of defective parts for customer premises' equipment (CPE).

It applies to individuals who work as telecommunications officers, installers, maintenance staff, and manufacturers or equipment specialists employed in an advisory and technical rectification role for commercial or residential installations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish background information | 1.1 Contact client to identify type of fault and occurrence<br>1.2 Obtain report of any action taken by first fault repairer and subsequent result<br>1.3 Analyse fault history to establish any fault patterns, including questioning personnel involved in previous fault repair if relevant<br>1.4 Develop strategies for identification and repair using advice from |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | other engineering and technical personnel<br>1.5 Refer to relevant legislation, codes, regulations and standards relating to repair<br>1.6 Inform customer of issues and possible solutions |
| 2. Undertake fault diagnostic | 2.1 Isolate fault progressively using a fault identification approach to remove likely variables from assessment<br>2.2 Identify fault in the shortest time possible or escalate to appropriate level<br>2.3 Seek back-up support from the product manufacturer when required |
| 3. Organise fault rectification | 3.1 Determine options to rectify fault, including any downtime, and present to customer for decision<br>3.2 Replace or repair defective parts or equipment according to service agreement<br>3.3 Reprogram equipment as required<br>3.4 Perform work safely, for both the repairer and customer<br>3.5 Dismantle and remove temporary service safely and efficiently, where appropriate<br>3.6 Provide on-site repair staff with clear and precise instructions on fault rectification where appropriate |
| 4. Document fault details | 4.1 Record details of fault and actions taken to find, repair and store for future reference<br>4.2 Advise product manufacturer of fault and repair details if applicable<br>4.3 Recommend changes to product or product model design where appropriate<br>4.4 Advise client and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.3, 3.2 | • Identifies, analyses and evaluates technical documentation including plans, codes, standards and regulatory information |
| Writing | 1.1, 1.4, 1.6, 2.3, 3.6, 4.1, 4.2 | • Prepares clear and concise written reports and workplace documentation incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.1, 1.3, 1.4, 1.6, 2.3, 3.1, 3.6, 4.2-4.4 | • Participates in exchanges with internal and external personnel using appropriate strategies to extract main ideas and information from oral texts<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 2.1, 3.3 | • Uses mathematical formulae to interpret technical data and measurements relating to equipment operations |
| Navigate the world of work | 1.5, 3.4, 3.5 | • Takes personal responsibility for adherence to legal and regulatory responsibilities and organisational policies and protocols relevant to own work |
| Interact with others | 1.1, 1.4, 1.6, 2.3, 4.2, 4.4 | • Collaborates with others to achieve joint outcomes, playing an active role in negotiating positive outcomes<br>• Selects and uses appropriate conventions and protocols when communicating with customers and personnel in a range of work contexts |
| Get the work done | 1.2, 2.1, 2.2, 3.2, 3.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify and rectify technical faults<br>• Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options, and seeking input and advice from others when necessary |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN509 Provide expert advice and support on complex faults | ICTTEN5084A Provide expert advice and support on complex faults | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN509 Provide expert advice and support on complex faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- methodically identify and rank likely causes of faults
- analyse and interpret test results
- apply enterprise escalation and outage procedures
- prioritise fault rectification in a timely manner and report progress
- organise repair of fault and conduct of tests to verify outcomes
- prepare documentation of fault:
  - nature
  - location
  - likely causes
  - repair methodology
  - recommendations relating to system redesign or specification.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain features and operating requirements of test equipment
- summarise information required to operate remote diagnostic equipment according to a test specification
- outline legislation, codes of practice and other formal agreements that impact the work activity
- explain manufacturer’s requirements for effective operation of equipment
- summarise specific work health and safety (WHS) requirements relating to the activity and site conditions


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- outline test methods and performance requirements
- explain typical issues and challenges that occur on site.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which fault diagnostics may be conducted
- testing equipment currently used in industry
- relevant regulatory and equipment documentation impacting complex fault repairs.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN510 Undertake planned outage management

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop strategies for dealing with customers, operational staff and associated system restoration.

It applies to individuals working as network engineering staff involved with the management of planned outages resulting from the fast changeover of new and existing equipment in telecommunications networks, including digital switching and transmission, wireless and optical networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for implementation of planned outage | 1.1 Determine requirements and purpose of the outage from the outage plan, obtained from relevant personnel<br>1.2 Analyse all relevant data to determine likely impact of the outage on clients and the network<br>1.3 Notify customer of outage work and disruption to service<br>1.4 Prepare for contingencies according to contingency plan, as |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | specified in the outage plan |
| 2. Implement planned outage | 2.1 Conduct and monitor outage work safely as prescribed, and implement contingency plan if required<br>2.2 Restore system to normal operational status and conduct performance tests of the system according to specifications<br>2.3 Analyse test results and certify system is operating to manufacturer's specifications<br>2.4 Notify relevant personnel of competed outage work and of service restoration |
| 3. Undertake administrative tasks | 3.1 Document problems that occurred during outage or restoration of service and report these as continuous improvement according to enterprise quality assurance policy<br>3.2 Complete required documentation and update records to reflect any changes made in the course of service restoration, according to enterprise policy |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 2.2, 2.3, 3.1, 3.2 | • Identifies, analyses and evaluates technical documentation and applies appropriate strategies to construct meaning from complex texts |
| Writing | 1.3, 2.4, 3.1, 3.2 | • Prepares clear and concise written reports and workplace documentation, incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.1, 1.3, 2.4 | • Liaises and negotiates with customers and technical staff to ensure service level agreement requirements are known and can be met within timeframes<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 1.2, 2.3 | • Uses mathematical formulae to interpret technical data and make appropriate calculations to determine equipment calibrations |


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| | | |
|---|---|---|
| Navigate the world of work | 2.1, 3.1, 3.2 | • Takes personal responsibility for adherence to organisational policies and protocols relevant to own work |
| Interact with others | 1.1, 1.3, 2.4 | • Selects and uses appropriate conventions and protocols when communicating with customers and personnel in a range of work contexts |
| Get the work done | 1.4, 2.1, 2.2 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to implement outage management plans and contingency plans<br>• Understands key principles and concepts underpinning design and operation of digital systems and tools, and applies these as required<br>• Makes decisions quickly and intuitively in familiar situations requiring immediate attention, drawing on past experience to identify key variables and determine the best course of action<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN510 Undertake planned outage management | ICTTEN5092A Undertake planned outage management | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN510 Undertake planned outage management

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- implement outage plan
- comply with service assurance guidelines
- comply with work health and safety (WHS) requirements and work practices
- conduct performance tests to verify normal operation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain electrical and optical principles
- summarise legislation and licensing surrounding installation of telecommunications equipment
- outline power requirements and electrical safety
- summarise protection switching
- clarify telecommunications networks
- describe test equipment types suitable for tests to be undertaken
- explain transmission hierarchy and switching principles
- summarise transmission type and signals that may be encountered.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which outage management may be conducted
- testing equipment currently used in industry
- manufacturer's and enterprise equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN511 Administer a data communications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to establish and configure a data communications network, maintain systems and applications, administer user accounts and diagnose and isolate system faults.

It applies to individuals working as technical staff who administer a local area network (LAN) or wide area network (WAN). They may make use of enterprise procedures and flow charts, and third party test routines analysing performance and functionality of a live data communications network.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Install and configure network | 1.1 Prepare and confirm, with relevant personnel, the physical and logical structure of a LAN design to resolve hardware and software compatibility conflicts<br>1.2 Prepare file server and install network server software<br>1.3 Execute workstation boot procedures and verify network and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | work station functionality<br>1.4 Document network physical connections and workstation characteristics |
| 2. Set up network facilities | 2.1 Configure set-up procedures for a network print server, network printer and a shared file system<br>2.2 Connect a bridge or router between two networks<br>2.3 Set up a gateway for a network<br>2.4 Set up a logical disk or volume structure |
| 3. Administer user accounts | 3.1 Create a user account and a user log script<br>3.2 Produce a document of network users for notification of their access rights and privileges<br>3.3 Add and delete users to maintain an up-to-date user list<br>3.4 Establish disk quotas for users<br>3.5 Develop common user security procedures and set up user profiles |
| 4. Install common applications | 4.1 Install and configure an application in client-server mode<br>4.2 Establish security and multiple access to an application<br>4.3 Set up and configure an email client and browser for the client |
| 5. Install and configure systems applications | 5.1 Configure a backup system for redundancy, according to customer policy<br>5.2 Administer disk fault tolerance and redundancy techniques |
| 6. Maintain system integrity | 6.1 Implement system integrity and system monitoring techniques to provide a reliable customer data network<br>6.2 Use diagnostic software to detect and isolate system faults<br>6.3 Produce a report on network performance and fault occurrence for the customer, with recommendations for improving the integrity of the data communications network |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 5.1 | • Identifies, analyses and evaluates technical documentation, such as software and hardware manuals and specifications and relevant enterprise policy and documentation |
| Writing | 1.1, 1.4, 3.1-3.3, 3.5, 6.3 | • Prepares clear and concise written reports and workplace documentation, incorporating technical language, to communicate complex information clearly and effectively |
| Oral Communications | 1.1 | • Establishes and maintains complex and effective communications in a broad range of contexts |
| Numeracy | 1.3, 3.4, 6.1 | • Analyses and synthesises highly embedded mathematical information while testing and analysing results |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1, 3.4, 3.5, 4.1-4.3, 5.1, 5.2, 6.1, 6.2 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to organise and implement testing and contingency plans<br>• Uses digital technologies and systems to enter, store and present data, and diagnose faults<br>• Uses intuition, analysis and lateral thinking processes to make decisions about complex issues |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN511 Administer a data communications network | ICTTEN5147A Administer a data communications network | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN511 Administer a data communications network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- establish and configure a data communications network
- set up and maintain systems, facilities, applications, and software
- administer user accounts
- diagnose and isolate system faults.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- determine features and operating requirements of data communications software and hardware for network systems
- outline manufacturer's requirements of testing software and equipment
- summarise test methods and performance requirements
- describe typical issues and challenges that occur when administering a data communications network.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites where communications network and systems user accounts can be administered
- equipment currently used in industry
- relevant regulations and company policies impacting communications network activities.


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Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN512 Design and implement an enterprise voice over

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design and implement infrastructure required to enable enterprises to use voice over internet protocol (VoIP) and other packet-based services using converging network technologies.

It applies to individuals who combine significant technical expertise with a range of analytical, research and planning skills to develop and tailor internet protocol (IP) convergence solutions for particular business needs.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and design VoIP infrastructure to meet business requirements | 1.1 Ascertain end-user requirements in consultation with client<br>1.2 Select VoIP infrastructure in line with business and end-user requirements, within budget limitations<br>1.3 Select protocols for converged networks<br>1.4 Select hardware, software, network and security requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | according to agreed business and end-user specifications<br>1.5 Investigate factors affecting bandwidth and calculate bandwidth usage for various codecs, including considerations of overhead, connection quality and connection speeds |
| 2. Install and configure VoIP infrastructure to meet business requirements | 2.1 Implement telephone number mapping (ENUM), number portability, end-point addressing, path selection, calling classes and overlapping number ranges<br>2.2 Install, configure and test gatekeepers<br>2.3 Install and test convergent terminal equipment and software<br>2.4 Install software, and configure and test VoIP services<br>2.5 Configure security access levels to safeguard data, making use of appropriate tools |
| 3. Configure UC network | 3.1 Obtain topology and components of UC network<br>3.2 Analyse potential of IP multimedia subsystem (IMS) network architecture to enable convergence of voice, video and data applications and various mobile network technologies over IP based layer<br>3.3 Incorporate use of a communications server to provide real-time multimedia communications<br>3.4 Select common video conferencing codecs according to standards and practices<br>3.5 Select voice and video conferencing hardware<br>3.6 Implement IP-private branch exchange (PBX) functionalities in the UC network |
| 4. Test and evaluate performance of convergent networks | 4.1 Develop possible network congestion solutions for common network congestions to meet the specified quality of service (QoS)<br>4.2 Provide solutions for problems with contacting emergency services<br>4.3 Analyse network traffic and resolve problems using packet sniffer, monitoring software and hardware solutions<br>4.4 Troubleshoot convergent communications over wireless networks<br>4.5 Analyse types and effects of attacks, including man-in-the-middle attacks<br>4.6 Plan ways to counteract denial of service (DoS) and distributed DoS (DDoS) attacks<br>4.7 Predict the impact of virtual local area network (VLAN) |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | hopping, media access control (MAC) address movements, additions and changes on network |
| 5. Test and verify security access levels | 5.1 Analyse types of intrusion detection<br>5.2 Monitor and evaluate capability and reliability of security systems<br>5.3 Make system alterations to ensure protection against known and potential threats<br>5.4 Verify and test user settings conform to security policies<br>5.5 Back-up, upgrade and scan systems to minimise attacks |
| 6. Complete documentation and sign-off procedures | 6.1 Complete required records and notify client<br>6.2 Remove installation waste and debris from worksite and dispose of according to environmental requirements to maintain safe worksite conditions<br>6.3 Reinstate site according to client and company requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.4 | • Identifies, analyses and evaluates standards to determine information and communications technology (ICT) requirements |
| Writing | 6.1 | • Prepares clear and concise workplace documentation incorporating technical language to communicate complex information clearly and effectively |
| Numeracy | 1.2, 1.5 | • Uses mathematical formulae and calculations to estimate project costs and bandwidth requirements |
| Navigate the world of work | 6.2, 6.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities and organisational policies and protocols relevant to own work |
| Interact with others | 1.1, 6.1 | • Selects and uses appropriate conventions and protocols when communicating with customers in a range of work contexts |


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| | | |
|---|---|---|
| Get the work done | 1.2-1.5, 2.1-2.4, | • Develops plans for complex, high impact activities with strategic implications<br>• Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues<br>• Selects and uses digital technologies and systems to achieve work goals and enhance work processes<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN512 Design and implement an enterprise voice over internet protocol and a unified communications network | ICTTEN5168A Design and implement an enterprise voice over internet protocol and a unified communications network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN512 Design and implement an enterprise voice over

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- design and implement infrastructure for enterprise voice over internet protocol (VoIP) and unified communications (UC) systems to meet business requirements using converged networks
- evaluate network traffic protocols and bandwidth considerations
- configure a UC network
- assess performance of convergent networks
- test and verify security access levels.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare session initiation protocol (SIP), H.323 protocol and media gateway control protocol (MGCP) or media gateway control (Megaco)
- define latency, jitter and wander, and implement methods for reducing or eliminating them using jitter buffer, quality of service (QoS), traffic shaping and virtual local area networks (VLANs)
- describe the format of a SIP uniform resource identifier (URI)
- evaluate and implement SIP trunking to connect enterprise internet protocol (IP)-based communications systems over long distances
- identify common G.7xx codes and describe the impact of compression on voice quality
- define components of SIP
- examine functions of signalling protocols for converged networks
- summarise the following:
  - the client business domain, business function and organisation


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- current and emerging industry accepted hardware and software products
- current and emerging transmission technologies and protocols
- networking technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a live network
- networked computers
- network design documentation
- equipment specifications
- network components.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN513 Install, configure and test a local area network switch

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to undertake local area network (LAN) switch installation, configuration and testing in field work. It also applies to switching protocols and diagnostics required for integrating new and converging functionalities to the network.

It applies to individuals, employed by telecommunications companies and information communications technology (ICT) networking provisioning companies, who carry out installation, maintenance and upgrade of ICT networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install the network switch | 1.1 Prepare for installation in line with site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.2 Notify customer to arrange site access |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Document the topology of the LAN<br>1.4 Obtain current and future network capacity predictions according to current and future business requirements from the appropriate person<br>1.5 Specify the number and type of switch required, with reference to future network requirements<br>1.6 Specify requirements for network management and security, as prescribed by organisational policy<br>1.7 Select the switch and switch operating system software version with appropriate features according to required specifications |
| 2. Install and configure the network switch | 2.1 Assemble, rack mount and connect switch and peripherals according to manufacturer's requirements<br>2.2 Connect user to access points using cable that meets appropriate standard<br>2.3 Establish a valid network connection with other network devices<br>2.4 Configure a network internet protocol (IP) address for the switch<br>2.5 Install or configure simple network management protocol (SNMP) agent software, on each switch, to collect network traffic data for the management information base (MIB) from that segment of the network and relay it to the management console<br>2.6 Install and configure SNMP management console software on a computer designated to be the network manager's main console, to collect network traffic data from the switch acting as agents<br>2.7 Manually configure user access ports of the switch for speed and full or half-duplex operation |
| 3. Test the network switch and reconfigure the network | 3.1 Test the switch and other network devices according to manufacturer's requirements and organisational guidelines<br>3.2 Test to ensure connectivity across the network<br>3.3 Modify the network to verify SNMP management software<br>3.4 Make adjustments to the network, depending on test and troubleshooting results |
| 4. Complete documentation and clean worksite | 4.1 Tabulate test results and complete all user reports<br>4.2 Complete report and notify client of network status<br>4.3 Clean up and restore worksite to client's satisfaction<br>4.4 Secure sign-off from appropriate person |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.6, 1.7, 2.1, 2.2, 3.1 | • Organises, evaluates and critiques information from a range of policy, technical and instructional material |
| Writing | 1.3, 4.1, 4.2 | • Prepares clear and concise workplace documentation incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.2, 1.4, 4.2 | • Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding |
| Numeracy | 2.7 | • Uses mathematical formulas and calculations to take test measurements, interpret results and evaluate performance and interoperability of network |
| Navigate the world of work | 1.1, 4.3 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work |
| Interact with others | 4.2-4.4 | • Selects and uses appropriate conventions and protocols when communicating with customers |
| Get the work done | 1.5, 1.7, 2.1-2.4, 2.7, 3.1-3.4 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Selects and uses digital technologies and systems to achieve work goals and enhance work processes<br>• Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues<br>• Uses analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN513 Install, configure and test a local area network switch | ICTTEN5200A Install, configure and test a local area network switch | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN513 Install, configure and test a local area network switch

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan and prepare for the local area network (LAN) switch installation task
- select a LAN switch to meet client business specifications
- install switches without the network losing connectivity or failing
- install and test switch that ensures interoperability within the network
- use a range of switch configurations
- apply solutions to a variety of switch-related problems
- report on status of completed installation
- seek sign-off from customer.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe advantages and disadvantages of switches over hubs
- identify and evaluate the impact of pertinent sections of the Australian Computer Society Code of Ethics in relation to network switches
- describe common network cable types and connectors
- summarise common network topologies
- explain differences between standard and intelligent (i.e. configurable) switches, and between switches and hubs
- outline the importance of client documentation prepared when installing networks
- explain how to provide the network with redundant paths for reliability and how routers and switches manage these paths.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where switch installation can be conducted
- field measurement equipment currently used in industry
- relevant switch specifications, technical requirements for a network, switch, cabling, networked (LAN) computers, workstations, servers and a wide area network (WAN) service point of presence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN514 Install, configure and test a server

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to undertake work on a server as part of an upgrade to an existing network or during the implementation of a new network.

It applies to individuals, employed by telecommunications and information communications technology (ICT) networking provisioning companies, who carry out installation, maintenance and upgrade of ICT networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to install a server | 1.1 Prepare for work in line with site-specific safety requirements and enterprise work health and safety (WHS) processes and procedures<br>1.2 Notify customer to arrange site access<br>1.3 Obtain server applications and features from appropriate personnel<br>1.4 Choose the most suitable server with reference to required server |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | application and server features<br>1.5 Choose the most suitable network operating system features with reference to required server solution and technical requirements<br>1.6 Provide alternative server solutions with reference to required server application and server features<br>1.7 Review required installation options<br>1.8 Analyse data migration requirements<br>1.9 Apply back-up and recovery requirements with reference to organisational policy<br>1.10 Analyse education and training requirements for support staff and in line with client requirements and relevant enterprise policies<br>1.11 Create and document a deployment plan<br>1.12 Advise user group of deployment and potential down times |
| 2. Install and configure the server | 2.1 Back up and restore local data in preparation for installation<br>2.2 Install and configure the server as required by technical requirements and functional specifications<br>2.3 Install and undertake configuration activities using relevant operating system and application upgrades<br>2.4 Reconnect and reconfigure relevant connectivity devices |
| 3.Test server and reconfigure the network | 3.1 Run system testing for benchmarking against client specification and requirements according to test plan, and record outcomes<br>3.2 Analyse the error report and make changes as required<br>3.3 Test required changes or additions<br>3.4 Validate changes or additions against specifications |
| 4.Complete documentation and clean worksite | 4.1 Make and document server configuration and operational changes<br>4.2 Tabulate test results and complete all documentation for users<br>4.3 Complete client report and notify of network status<br>4.4 Clean up and restore worksite to client’s satisfaction<br>4.5 Secure sign-off from appropriate person |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.8-1.10, 2.2, 3.1, 3.4 | • Organises, evaluates and critiques information from a range of enterprise policies, technical and instructional material |
| Writing | 1.11, 3.1, 4.1 | • Prepares clear and concise workplace documentation incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.2, 1.3, 4.3 | • Clearly articulates requirements using language appropriate to audience and environment<br>• Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding |
| Numeracy | 3.1-3.3, 4.2 | • Make test measurements, interpret results and evaluate performance and interoperability of network |
| Navigate the world of work | 1.1, 1.9, 1.10, 4.4 | • Takes personal responsibility for adherence to legal and regulatory responsibilities and organisational policies and protocols relevant to own work |
| Interact with others | 1.12, 4.2, 4.3, 4.5 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts<br>• Considers purpose and possible actions to be taken as a result of any work-related communication<br>• Recognises importance of taking audience, purpose and contextual factors into account when making decisions about what to communicate with whom and why |
| Get the work done | 1.1, 1.4-1.6, 1.9, 2.1-2.4, 3.1-3.4, 4.1 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues<br>• Selects and uses digital technologies and systems to achieve work goals and enhance work processes<br>• Uses formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN514 Install, configure and test a server | ICTTEN5201A Install, configure and test a server | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN514 Install, configure and test a server

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- analyse server and network operational issues
- apply user applications and relate to user needs when configuring a server
- create technical and user documentation
- install and configure server
- test server and reconfigure network
- troubleshoot server and network failures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the Australian Computer Society Code of Ethics
- describe the following aspects of a common network:
  - cable types and connectors
  - topologies
- explain compatibility issues and resolution procedures
- summarise desktop applications and operating systems
- outline documentation requirements for networks
- describe typical enterprise communication and training systems for staff involved in deployment
- outline features of:
  - current network operating systems (NOS)
  - current server applications compatibility issues and resolution procedures
- outline implementation and configuration of servers


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- explain system back-up procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where server installation may be conducted
- relevant server specifications
- cabling
- networked local area network (LAN) computers
- server diagnostic software
- switch
- technical requirements for a network
- wide area network (WAN) service point of presence
- workstations
- relevant regulatory documentation impacting installation activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN515 Dimension and design a radio frequency identification system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to carry out installation, maintenance and upgrade of information and communication technology (ICT) networks.

It applies to individuals employed by telecommunications and ICT networking provisioning companies specialising in radio frequency identification (RFID) technology. These individuals might work on upgrades to existing systems or be involved in implementation of new logistical or security networks using RFID technology according to design specifications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to dimension and design an RFID system | 1.1 Obtain the client's business requirements of the intended RFID system to effectively inform the new design<br>1.2 Research RFID technologies, their functionalities and different implementations of configurations<br>1.3 Select suitable software and hardware types to ensure the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | proposed system is designed to meet business requirements<br>1.4 Conduct a survey of available interrogators or readers, tags and wireless units |
| 2. Dimension and design RFID system | 2.1 Select the most appropriate interrogators or readers for the given specification to ensure their compatibility with current network infrastructure, if applicable<br>2.2 Minimise interrogator to interrogator interference<br>2.3 Verify antenna geometry and footprint are consistent with the chosen design<br>2.4 Minimise sources of interference<br>2.5 Incorporate use of anti-collision protocols into the RFID design<br>2.6 Customise appropriate tag to client requirements<br>2.7 Predict performance for read distance, write distance and tag response time to confirm these conform with client requirements<br>2.8 Select optimal locations for an RFID tag to be placed on an item<br>2.9 Prepare a design proposal for the RFID system including specifications<br>2.10 Prepare a report containing design solutions and recommendations of preferred products, including justification for recommendations<br>2.11 Submit report to client for approval |
| 3. Document specified design | 3.1 Complete documentation according to client requirements<br>3.2 Inform client of standards applying to the design<br>3.3 Secure sign-off of RFID design from appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2 | • Organises, evaluates and critiques technical documentation from a range of complex texts |


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| | | |
|---|---|---|
| Writing | 2.9, 2.10, 3.1 | • Prepares clear and concise workplace documentation including reports and design solutions incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.1 | • Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding |
| Numeracy | 1.2, 2.7, 2.9 | • Uses mathematical formulae and geometric calculations to interpret and record technical specifications and evaluate possible design solutions |
| Interact with others | 1.1, 2.11, 3.2, 3.3 | • Selects appropriate communication protocols and conventions in a broad range of work contexts |
| Get the work done | 1.3, 1.4, 2.1-2.6, 2.8 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues<br>• Selects and uses digital technologies and systems to achieve work goals and enhance work processes<br>• Uses formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN515 Dimension and design a radio frequency identification system | ICTTEN5203A Dimension and design a radio frequency identification system | Updated to meet Standards for Training Packages<br><br>Minor changes to performance criteria for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | clarity | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN515 Dimension and design a radio frequency identification system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- adapt radio frequency identification (RFID) technologies to a specified plan and design
- evaluate RFID client specifications against accepted industry practices
- include RFID architecture across a secure environment
- integrate RFID information into business applications
- produce design information in configuring the network with internet protocol (IP) addressing
- produce information that can be shared between businesses
- make recommendations and offer optimum design solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the business process design
- summarise the client's business operations, business function and organisation
- outline compatibility issues with existing system and resolution procedures
- explain configuration of IP networks
- describe desktop applications and operating systems as required
- explain the linkage between operational processes
- summarise network protocols and operating systems
- outline network topologies
- summarise radio spectrum and RFID frequencies
- explain radio frequency (RF) interference
- describe general characteristics of RFID architecture


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- provide a detailed summary of RFID hardware and software
- outline RFID technologies incorporating substantial depth in network operating systems, protocols, interrogators and sensors, wireless technologies and cabling standards
- demonstrate RFID product knowledge
- summarise security protocols, standards and data encryption.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a suitable telecommunications site
- client's functional requirements
- RFID equipment specifications
- database software
- simulation software
- organisational guidelines
- network or computer layout documentation and premises plans.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN516 Produce technical solutions from business specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to compile and evaluate business specifications from a client and produce viable business solutions.

It applies to individuals who carry out network design and implementation of practical technical solutions of information and communication technology (ICT) networks. They are employed by telecommunications and information technology networking provisioning companies specialising in integrating converging and emerging technologies of ICT networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to produce technical solutions from business specifications | 1.1 Obtain business requirements and business specifications for the client from appropriate person<br>1.2 Research and identify the client's business model<br>1.3 Determine technical specifications for the business<br>1.4 Clarify and confirm the business problem and key stakeholders' |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements with stakeholders |
| 2. Evaluate the impact of the technical requirements | 2.1 Review and assess business problems, opportunities and objectives<br>2.2 Determine technical requirements in respect of input and output, interface, process flow or quality requirements<br>2.3 Analyse hardware, software and network requirements<br>2.4 Build business platform based on software solutions<br>2.5 Investigate processes to be changed by the business solution<br>2.6 Produce an evaluation document on the impact of the technical requirements on the business |
| 3. Produce technical business solutions | 3.1 Develop technical solutions in response to problems and business requirements<br>3.2 Determine costs involved to implement the technical business solution<br>3.3 Investigate a range of supplier products to determine which one best meets technical requirements<br>3.4 Produce a report on the technical solutions addressing the business specifications and recommendations against business requirements |
| 4. Document and validate agreed solutions | 4.1 Forward technical requirements and solution overview to appropriate person for feedback<br>4.2 Analyse feedback and incorporate change as required<br>4.3 Document changes and distribute to appropriate person<br>4.4 Obtain sign-off on final business solution |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1, 4.2 | • Organises, evaluates and critiques workplace documentation from a range of complex texts |


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| | | |
|---|---|---|
| Writing | 1.5, 2.6, 3.4, 4.3 | • Prepares clear and concise workplace documentation including reports and design solutions incorporating technical language to communicate complex information clearly and effectively |
| Oral communication | 1.4 | • Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding |
| Numeracy | 3.2 | • Uses mathematical formulas and calculations to interpret business costs and evaluate possible technical design solutions |
| Interact with others | 1.1, 1.2, 1.4, 1.5, 4.1, 4.3, 4.4 | • Recognises and applies protocols governing what to communicate, with whom and how in context of own work<br>• Selects appropriate communication protocols and conventions in a broad range of work contexts |
| Get the work done | 1.3, 2.1-2.5, 3.1, 3.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to understand uses and potential of technology<br>• Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues<br>• Considers strategic and operational potential of digital trends to achieve work goals, enhance work processes and enhance solutions<br>• Uses formal, analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN516 Produce technical solutions from | ICTTEN5204A Produce technical solutions from | Updated to meet Standards for Training | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| business specifications | business specifications | Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN516 Produce technical solutions from business specifications

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- adapt technologies for required technical solutions
- use site design software and hardware
- evaluate client specifications against accepted industry practices
- develop technical solutions from business specifications
- document information that can be shared between businesses
- apply design concepts to business solutions
- document technical reports
- make recommendations and offer optimum design solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the client business domain, business function and organisation
- explain compatibility issues and resolution procedures
- outline configuration of internet protocol (IP) networks
- describe common desktop applications and operating systems
- explain how to document technical specifications
- summarise security protocols, standards and data encryption
- explain the role of the following technologies in business systems:
  - network topologies
  - network protocols and operating systems
  - radio frequency (RF) networks
  - optical networks


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- mobile cellular networks
- core networks
- access networks
- radio frequency identification.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- client functional requirements
- business specifications
- database software
- simulation software
- organisational guidelines
- network and computer layouts
- site design software and hardware
- information on a range of ICT business solutions.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN517 Plan a wireless mesh network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design a scalable wireless access network using mesh technology for growing communities to provide users with secure wireless roaming beyond traditional wireless local area network (LAN) boundaries, and which are readily deployed in areas that lack wired backhaul.

It applies to individuals who have proficient technical skills such as planning and field officers from private and public organisations who undertake work on wireless networking or radio communications equipment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research wireless mesh networks and formulate the system architecture | 1.1 Confirm, with regulatory spectrum management authority, the specific regulations regarding radio characteristics<br>1.2 Contact customer to determine wireless mesh network design specifications<br>1.3 Evaluate the use of frequency bands for operation of the wireless |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | mesh networks (WMN)<br>1.4 Evaluate and select wireless technology, internet protocol (IP) version and mesh routing protocol to satisfy design criteria<br>1.5 Specify and source hardware and software requirements |
| 2. Prepare a detailed plan for the mesh network | 2.1 Evaluate the maximum line of sight distances achievable between backbone nodes and between mesh nodes<br>2.2 Plan sites where mesh nodes will be located and plot to scale on a map<br>2.3 Estimate quantity and length of the links required between mesh nodes to ensure design is within specifications<br>2.4 Design backbone links in mesh topology for scalability of future deployments<br>2.5 Select location of the internet gateway for the network<br>2.6 Allocate operating frequencies at mesh nodes, backbone nodes and wireless access points for optimum network performance with minimal interference from adjacent network routers |
| 3. Plan IP addresses and subnet mask | 3.1 Produce an addressing scheme and allocate IP addresses and subnet mask to mesh nodes, backbone nodes and access points<br>3.2 Produce a configuration scheme to secure network |
| 4. Document the mesh network | 4.1 Document plans and drawings for the mesh network<br>4.2 Produce an installation plan for building the mesh network<br>4.3 Following installation, configuration and testing of the mesh network, incorporate 'as built' amendments, if appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 1.4, 2.1, 4.1 | • Critically analyses plans and other documentation from a variety of sources, and consolidates information to evaluate requirements |
| Writing | 1.5, 3.2, 4.1, 4.2 | • Prepares clear and concise workplace documentation |


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| | | |
|---|---|---|
| | | including reports and design solutions incorporating technical language to communicate complex information clearly and effectively |
| Numeracy | 2.1-2.4 | • Performs calculations, interprets results and evaluates different types of technical data for design solutions |
| Oral Communication | 1.1, 1.2 | • Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding |
| Interact with others | 1.1, 1.2 | • Recognises and applies protocols governing what to communicate, with whom and how, in own work context |
| Get the work done | 1.3-1.5, 2.1, 2.2, 2.4-2.6, 3.1, 4.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Selects and uses digital technologies and systems to achieve work goals and enhance work processes<br>• Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues<br>• May use formal, analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN517 Plan a wireless mesh network | ICTTEN5217A Plan a wireless mesh network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN517 Plan a wireless mesh network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- evaluate and select wireless technology and mesh routing protocol
- plan a wireless mesh network from a project brief
- produce an internet protocol (IP) addressing scheme
- prepare an installation plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate antenna gain and polarisation
- outline cable loss
- conduct calculations for effective isotropic radiated power (EIRP)
- calculate line of site radio range
- explain decibels and related units
- summarise IP addressing and subnet masks
- explain network security and firewalls
- outline a range of network topologies
- summarise radio frequency (RF) bands
- explain routing protocols
- clarify transmission control protocol (TCP)-IP protocols
- explain wireless networking hardware, access points, wireless routers and gateway
- explain wireless protocols.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites where planning a wireless mesh network may be conducted
- design criteria and other site-related documentation
- equipment specifications and technical documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN601 Undertake qualification testing of new or enhanced equipment and systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to inspect and test international telecommunications network equipment not previously installed in an Australian network. It involves assessing its suitability and compliance with local regulations and conditions for the carrier or asset owner.

It applies to individuals working as field officers, technicians or technical supervisors for carriers, contractors or other service providers, who verify compliance of new equipment or systems with Australian standards.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Ensure conformity of international design to Australian standards | 1.1 Assess original international design to verify compliance with relevant Australian legislation, codes, regulations and standards<br>1.2 Reconfigure international design in consultation with customer<br>1.3 Rewrite design specifications to include configuration |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | amendments |
| 2. Plan and establish test regime | 2.1 Plan type and number of tests to ensure full trial of new or enhanced design and greatest coverage for minimal tests<br>2.2 Plan and establish test environment to ensure total validity of chosen tests<br>2.3 Design test regime of proposed system to test impact on existing systems<br>2.4 Confirm test regime in consultation with planners and verify test equipment meets required standards |
| 3. Undertake tests | 3.1 Conduct and document tests including live system tests in logical and sequential order to planned test regime<br>3.2 Negotiate problems experienced during tests with system experts or designers to plan contingency activity according to enterprise policy<br>3.3 Prepare and submit trouble reports according to enterprise policy |
| 4. Analyse test results | 4.1 Analyse test results against design specifications and planned outcomes<br>4.2 Prepare a report referring major deficiencies to designers with recommendations for design change<br>4.3 Analyse minor variances, plan solutions and document changes to specifications |
| 5. Retest design changes | 5.1 Implement design and specification changes and conduct further tests as required<br>5.2 Analyse test results to verify compliance with updated design specifications<br>5.3 Document results of tests according to enterprise policy |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 3.2, 3.3, 4.1, 5.3 | • Organises, evaluates and critiques technical specifications, legislative, regulatory and policy requirements |
| Writing | 1.3, 3.1, 3.3, 4.2, 4.3, 5.3 | • Prepares clear and concise workplace documentation including reports incorporating technical language to communicate recommendations clearly and effectively |
| Oral Communication | 1.2, 2.4 | • Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding |
| Numeracy | 4.1, 5.2 | • Uses mathematical formulae to make calculations and necessary calibration changes by interpreting test results |
| Navigate the world of work | 1.1, 3.2, 3.3, 5.3 | • Adheres to organisational procedures and protocols and legal and regulatory responsibilities, and considers these when planning and undertaking work |
| Interact with others | 2.4, 3.2 | • Collaborates with others to achieve joint outcomes, playing an active role in negotiating positive outcomes<br>• Selects and uses appropriate conventions and protocols when communicating with personnel in a range of work contexts |
| Get the work done | 2.1-2.3, 3.1, 3.2, 4.3, 5.1 | • Takes responsibility for own workload, negotiating some key aspects with others<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high impact activities with strategic implications<br>• Uses sophisticated understanding of principles, concepts, language and practices associated with the digital world to identify uses and potential of new technologies<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Uses formal, analytical and lateral thinking techniques for identifying issues, and generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN601 | ICTTEN6036A | Updated to meet | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| Undertake qualification testing of new or enhanced equipment and systems | Undertake qualification testing of new or enhanced equipment and systems | Standards for Training Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN601 Undertake qualification testing of new or enhanced equipment and systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- apply Australian standards to international designs
- identify customer's specific requirements
- configure and set up test regimes
- identify and conduct tests, including live system tests, and interpret and analyse results
- approach problem diagnosis systematically, eliminating causes
- re-test design changes
- prepare report, including deficiencies, analysis and recommendations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the Australian standards applicable to system and equipment compliance
- outline necessary connections to carrier infrastructure or equipment
- evaluate the system design requiring testing
- explain network and equipment tests required for compliance
- outline common network architectures
- explain relevant international standards.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:


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- a test site where qualification testing of equipment and systems may be conducted
- equipment currently used in industry
- relevant Australian and international standards, codes, design specifications, manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN602 Undertake system administration

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to maintain the integrity of network support systems and software, for both system platforms and applications of computer systems, including local area networks (LAN) and wide area networks (WAN).

It applies to individuals, working as system administration support officers for service providers and large organisations, who manage and administer networks and make recommendations for improved customer support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Undertake proactive maintenance of system | 1.1 Prepare methodology to undertake platform database optimisation and administration effectively<br>1.2 Produce a cost-benefit analysis of database optimisation schedule to evaluate the effective return on investment (RoI) benefit to the organisation<br>1.3 Produce training instructions for new users on methodology to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | ensure effective database optimisation and administration<br>1.4 Interrogate and monitor system platforms to determine error logs, aging time on processes, database checks and system loadings<br>1.5 Notify appropriate personnel of problems and provide advice and guidance on likely solutions<br>1.6 Conduct system measurements from a user perspective on response times, and initiate investigations on problems where specifications are not being met<br>1.7 Assess availability of data storage space and initiate appropriate action where required<br>1.8 Develop procedures for system backup and restoration, review for efficiency of operation and amend where required |
| 2. Provide application support to system users | 2.1 Produce a set of procedures for formal meetings with users on a regular basis for effectiveness to discuss user issues and provide support<br>2.2 Set up a user support network to provide responsive system administration to users on an ongoing basis as critical issues arise |
| 3. Create and delete user accounts | 3.1 Create a hierarchical user profiling system to manage user accounts effectively according to enterprise policy<br>3.2 Establish and monitor security procedures relating to access according to policy<br>3.3 Assess grounds for deletion of user accounts and determine necessary action |
| 4. Undertake special investigations | 4.1 Evaluate requests for investigation to determine detail of action required<br>4.2 Prepare activity plan including timelines, specific goals, investigative team and resources required to conduct an investigation<br>4.3 Conduct investigation methodically according to plan and record findings<br>4.4 Analyse findings and prepare and forward reports, including recommendations to the requesting body |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.1, 3.2, 4.4 | • Organises, evaluates and interprets technical specifications and related documentation from a range of complex texts |
| Writing | 1.2, 1.3, 1.8, 2.1, 4.2-4.4 | • Prepares clear and concise workplace documentation including training instructions<br>• Produces reports on system administration and investigations, incorporating technical language, to communicate complex information clearly and effectively |
| Oral Communication | 1.5 | • Provides verbal instructions and guidance using specific and relevant language suitable to audience<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 1.2, 1.6 | • Uses mathematical formulae to make statistical calculations about traffic predictions<br>• Uses mathematical formulae to complete cost-benefit analysis |
| Get the work done | 1.1, 1.4-1.7, 2.2, 3.1-3.3, 4.1-4.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Considers the strategic and operational potential of digital technologies to achieve work goals, enhance work processes and enhance solutions<br>• Uses digital systems and tools to enter, store and monitor data<br>• Recognises and addresses some unfamiliar problems of increasing complexity within own scope<br>• Uses formal processes to monitor implementation of solutions and reflect on outcomes |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN602 Undertake | ICTTEN6042A Undertake | Updated to meet | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| system administration | system administration | Standards for Training Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN602 Undertake system administration

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- prepare a methodology for system maintenance
- produce cost-benefit analysis and training for database optimisation and administration
- review development of training instructions
- conduct system measurements
- develop support processes for system users
- manage user accounts and security procedures
- investigate potential system administration problems and make recommendations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise back-up systems
- demonstrate a deep knowledge of computer systems
- outline meeting procedures
- outline the common methodology for system administration
- summarise optimisation and administration of a database
- provide a summary of telecommunications monitoring tools
- explain the process for investigation requests and actions
- outline user account security and profiling system.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a network for maintenance and analysis of special investigations
- equipment and systems manuals, specifications and enterprise policy.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN603 Undertake network traffic management

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to monitor, analyse and improve network performance for the purpose of effectively managing traffic flow in telecommunications networks.

It applies to individuals working as field officers, technicians or technical supervisors for carriers, contractors or other service providers, who manage network traffic and make recommendations for capacity planning switching and transmission networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate network capacity and traffic problems | 1.1 Interrogate network alarms to identify areas of route and circuit unavailability<br>1.2 Assess planned and unplanned outages to determine network unavailability and verify restoration times<br>1.3 Interrogate system to identify traffic status using network management system |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Analyse system alert to identify real and potential traffic problems<br>1.5 Analyse customer complaints and traffic measurement data to identify network problems<br>1.6 Activate and deactivate semi-permanent controls active in the network on a regular basis to simulate irregular traffic |
| 2. Develop strategies to overcome network traffic problems | 2.1 Conduct traffic measurements across all identified routes<br>2.2 Analyse results including historical data to make assessment of traffic volume requirements<br>2.3 Determine specific thresholds, loading and grading levels to alter traffic flows<br>2.4 Liaise with personnel to determine amendments to plan, based on funding parameters and budgeted levels<br>2.5 Develop strategies, based on traffic analysis and patterns, to control traffic and prevent congestion or other traffic problems<br>2.6 Develop strategies for recovery where traffic congestion occurs<br>2.7 Develop contingency plans to allow for problems during network changes |
| 3. Apply short and long term solutions | 3.1 Implement software changes according to planned strategy<br>3.2 Develop short-term ad hoc solutions where only a temporary solution is required<br>3.3 Ensure reversal action can be initiated in cases of temporary solutions<br>3.4 Implement contingency plan where required<br>3.5 Undertake monitoring of changes and take measurements to assess outcomes of variations<br>3.6 Prepare a report based on analysis of measurements for appropriate personnel with recommendations for further changes or actions<br>3.7 Review and monitor strategies regularly and initiate corrective action where required |
| 4. Detect and take action on potential traffic congestion | 4.1 Measure and analyse traffic loads to assess potential congestion problems and determine possible impact<br>4.2 Control traffic flow to prevent processor overloads<br>4.3 Evaluate potential traffic increases for impact on the network and develop contingencies to control traffic flow if required |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 5. Provide traffic indicators for capacity planning | 5.1 Predict future potential traffic trends and requirements using data on current and historical traffic patterns<br>5.2 Identify potential network traffic problems and make recommendations to network planners<br>5.3 Complete reports with recommendations and forward to enterprise planners and account managers |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.5, 2.2, 5.1 | • Organises, evaluates and interprets technical specifications and related documentation from a range of complex texts |
| Writing | 2.5-2.7, 3.6, 5.3 | • Prepares clear and concise workplace documentation, including reports and recommendations incorporating technical language, to communicate complex information clearly and effectively |
| Oral Communication | 2.4 | • Participates in verbal exchanges using specific and relevant language suitable to audience<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 1.5, 2.1-2.4, 3.5, 4.1, 5.1 | • Uses mathematical formulas to interpret data and make projections about traffic flow<br>• Uses mathematical formulae to estimate and plan project costs within business budgets |
| Interact with others | 2.4, 5.2, 5.3 | • Collaborates with others to achieve joint outcomes<br>• Selects and uses appropriate conventions and protocols when communicating with personnel in a range of work contexts |
| Get the work done | 1.1-1.4, 1.6, 2.5-2.7, 3.1-3.4, 3.7, 4.2, 4.3 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Approaches problem-solving in diverse ways, recognising that there is no single formula that applies |


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| | | |
|---|---|---|
| | | in all situations<br>• Uses formal processes to monitor implementation of solutions and reflect on outcomes<br>• Uses digital systems and tools to enter, store and analyse data |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN603 Undertake network traffic management | ICTTEN6043A Undertake network traffic management | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN603 Undertake network traffic management

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- implement a contingency plan
- conduct traffic measurements
- develop contingencies to control traffic flow
- identify potential network traffic problems and make recommendations
- provide information for capacity planning.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain customer policies and service level agreements
- outline network management planning principles
- summarise traffic blocking, congestion and dimensioning principles
- explain traffic engineering
- summarise traffic patterns
- outline transmission type and signals that may be encountered
- clarify typical network topologies, switching, routing and transmission techniques
- summarise various network management systems suitable for conducting traffic evaluations.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a network and equipment for traffic monitoring and management
- equipment and systems manuals, specifications and enterprise policy.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN604 Coordinate fault rectification and restoration of service following network outages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to identify, analyse and resolve service faults by coordinating fault rectification. It describes strategies for dealing with customers, operational staff and associated system restoration.

It applies to individuals who have high-level technical skills and appropriate authority to coordinate activities of maintenance personnel and oversee compliance issues associated with service level agreements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for restoration of client services | 1.1 Evaluate relevant data to determine the nature of the fault and extent of the outage<br>1.2 Assess impact of the fault on network and clients, and establish priority of actions to be taken<br>1.3 Analyse alarm and other network data and record details |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | according to contractual agreements and enterprise policy<br>1.4 Prepare an action plan to manage fault rectification and restoration to minimise impact on the network and affected customer<br>1.5 Provide a central point for all rectification and restoration activity and information, to coordinate action and progress<br>1.6 Prioritise service restoration based on assessment of contractual arrangements, including service level agreements with clients<br>1.7 Negotiate with client's account manager regarding repair arrangements where service level agreements cannot be met |
| 2. Implement action plan for fault rectification and service restoration | 2.1 Notify all relevant personnel and departments involved in the outage, according to enterprise policy<br>2.2 Isolate affected alarms and monitor all associated alarms to confirm no additional problems occur<br>2.3 Locate and rectify fault, following action plan backed up by contingency plan according to enterprise policy<br>2.4 Manage repair activity with appropriate technical support and adjust resource allocations or escalate if required to ensure effective restoration of network services within a specified timeline<br>2.5 Reset alarms and restore services to normal network configuration<br>2.6 Test and monitor network activity on recovery to certify effective fault clearance and service restoration |
| 3. Finalise administrative tasks | 3.1 Complete administrative tasks according to enterprise instructions<br>3.2 Notify customers of fault rectification and service restoration according to service level agreement |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.6, 2.1, 2.3, 3.1, 3.2 | • Organises, evaluates and interprets technical readings, instructional material and workplace documentation from |


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| | | |
|---|---|---|
| | | a range of complex texts |
| Writing | 1.3, 1.4, 3.1 | • Prepares clear and concise workplace documentation, including reports and recommendations, incorporating technical language to communicate complex information clearly and effectively |
| Numeracy | 1.1, 1.3 | • Analyses and synthesises highly embedded mathematical information |
| Interact with others | 1.7, 2.4 | • Demonstrates understanding of what to communicate, with whom and how, in a broad range of work contexts<br>• Collaborates and cooperates with others to achieve joint outcomes |
| Get the work done | 1.2, 1.4-1.6,<br>2.2-2.6 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Uses digital systems and tools to enter, store and monitor data, and for communication purposes<br>• Uses formal, analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions<br>• Uses formal processes to monitor implementation of solutions and reflect on outcomes |

# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN604 Coordinate fault rectification and restoration of service following network outages | ICTTEN6044A Coordinate fault rectification and restoration of service following network outages | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN604 Coordinate fault rectification and restoration of service following network outages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- prepare an action plan to manage fault rectification and service restoration
- coordinate implementation of action plan and manage repair activities
- apply escalation procedures
- finalise the administrative and notification processes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline alarm conditions and areas of the network or service they impact
- clarify connections to carrier infrastructure or equipment
- summarise customer care and service level agreements and policies
- outline electrical and optical principles underpinning telecommunications
- summarise escalation procedures and list appropriate tier level contacts
- summarise legislation and licensing requirements surrounding installation of telecommunications equipment
- describe network and transmission equipment faults
- outline work health and safety (WHS) requirements and work practices relevant to fault rectification
- explain power requirements and electrical safety
- outline protection switching
- list telecommunications applications and related equipment
- provide a detailed list of relevant test equipment
- outline transmission hierarchy and switching principles


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- summarise typical performance parameters and faults that may be encountered.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites where fault rectification and restoration of service may be conducted
- testing equipment currently used in industry
- manufacturer's and enterprise documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN605 Implement planned network changes with minimal impact to the customer

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to effectively upgrade network equipment, increase network capacity, install new network elements and change existing network elements. It involves control of planned routine maintenance activities on the network.

It applies to individuals with high-level technical skills, working for service providers, asset owners and contractors, who coordinate activities of maintenance personnel and address compliance issues associated with service level agreements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for network changes plan | 1.1 Obtain relevant legislation, codes, regulations and standards for compliance when conducting work<br>1.2 Evaluate work order with relevant personnel and identify likely effects, on the network and impact on customers, of the planned |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | changes<br>1.3 Develop network engineering strategies including management of outages with involvement of the network operations centre (NOC)<br>1.4 Prepare and produce a network changes plan for approval according to enterprise practice |
| 2. Implement and test network changes prior to customer utilisation | 2.1 Implement network changes according to network engineering strategies following work health and safety (WHS) and environmental requirements with minimal impact to customer traffic<br>2.2 Conduct integration testing of newly installed equipment to ensure interoperability with existing equipment and network<br>2.3 Conduct performance test to assess network changes as stated in manufacturer's specifications and enterprise acceptance testing procedures<br>2.4 Analyse test results and rectify problems or escalate according to enterprise procedures<br>2.5 Initiate quality assurance procedures to ensure confidence in quality of processes according to enterprise policy<br>2.6 Prepare reports for the appropriate area within the enterprise |
| 3. Enable functionality of network changes to customer | 3.1 Monitor network stability prior to connecting customer traffic and take action to rectify any problems<br>3.2 Enable full functionality of network changes to customer according to the network changes plan, and monitor network to ensure continued stability<br>3.3 Prepare appropriate documentation according to enterprise requirements |
| 4. Assess and report on implementation of network changes | 4.1 Use monitoring data to evaluate performance of the network changes and impact to customers according to network engineering strategies and customer requirements<br>4.2 Document implementation of planned network changes and recommend any further improvements as part of the enterprise's quality assurance system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.3-2.5, 3.2, 3.3, 4.1 | • Organises, evaluates and interprets equipment and system manuals and specifications, and relevant enterprise policy and documentation |
| Writing | 1.4, 2.6, 3.3, 4.2 | • Prepares clear and concise workplace documentation including reports and recommendations incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.2 | • Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding |
| Navigate the world of work | 2.1, 2.5, 4.2 | • Considers and adheres to organisational procedures and protocols and legal and regulatory responsibilities when planning and undertaking work<br>• Seeks to improve policies and procedures to better meet organisational goals |
| Get the work done | 1.1-1.3, 2.2-2.5, 3.1, 3.2, 4.1 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Uses digital systems and tools to enter, store and analyse data<br>• Considers strategic and operational potential of digital trends to achieve work goals, and enhance work processes and solutions<br>• May use formal, analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions and escalating issues to others when appropriate |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN605 Implement planned network | ICTTEN6045A Implement planned network | Updated to meet Standards for Training | Equivalent unit |


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| Code and title<br>current version | Code and title<br>previous version | Comments | Equivalence status |
|---|---|---|---|
| changes with minimal impact to the customer | changes with minimal impact to the customer | Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN605 Implement planned network changes with minimal impact to the customer

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- evaluate planned network changes, including impact on customer
- develop network engineering strategies to manage outages
- implement network changes
- conduct integration testing, analyse results and rectify faults
- enable full functionality of network changes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline compatibility and interoperability of system types
- explain factors affecting network stability
- identify and describe the function of network hardware
- summarise internet protocol (IP) based networks
- outline legislation and licensing requirements relevant to work activity
- provide a detailed summary of optical networks
- explain quality assurance procedures
- identify and describe the function of network software
- evaluate the test equipment suitable for tests to be made, and describe calibration procedures
- outline types of customer networks.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites where network changes may be conducted
- testing equipment currently used in industry
- systems manuals, specifications and enterprise policy.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN606 Manage a common channel signalling network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to combine technical and organisational assistance to provide signalling facilities to interconnect telecommunications over trunked networks.

It applies to individuals who may be responsible for small projects or parts of larger projects to provide a reliable service to customers and who work as technical officers or engineers for private and public organisations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse signalling and digital path alarms and clear network faults | 1.1 Obtain relevant legislation, codes, regulations and standards to prepare for the task<br>1.2 Activate alarm management system to produce a trouble report and verify common channel signalling (CCS) and data faults or problems<br>1.3 Investigate cause of alarm and analyse results to determine |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | appropriate repair action and allocate resources<br>1.4 Monitor repair and restoration procedures to ensure commitment to specified timelines and initiate escalation procedures as appropriate and according to enterprise procedures<br>1.5 Reset alarms on completion of repair and monitor subsequent alarms to ensure no re-occurrence of the problem |
| 2. Monitor integrity of data received on equipment ports | 2.1 Activate alarm screens and monitor port times on a regular basis to ensure procedures are running<br>2.2 Clear port blockage and problems on completion of planned works and log in appropriate database<br>2.3 Monitor repair and restoration procedures to ensure commitment to specified timelines and initiate escalation procedures as appropriate and according to enterprise procedures |
| 3. Monitor and acceptance test repair | 3.1 Verify network stabilisation throughout repair and monitor repair action to ensure minimal impact on the overall network<br>3.2 Undertake acceptance testing according to prescribed operating procedures<br>3.3 Monitor network stability on completion and refer problems to appropriate area for action<br>3.4 Block alarms for out-of-service circuits |
| 4. Coordinate CCS relationships | 4.1 Log requests for relationship change and follow up problems with appropriate support staff<br>4.2 Monitor network stability and manage loading of data until the process is completed<br>4.3 Update models and enterprise systems |
| 5. Coordinate CCS rearrangements | 5.1 Log requests for rearrangement scenarios and verify feasibility of the rearrangement<br>5.2 Enter details of rearrangement in appropriate system and update system records<br>5.3 Monitor completed work for accuracy and network stability on completion<br>5.4 Produce a copy of documentation for future reference |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.4, 2.3, 3.2 | • Organises, evaluates and interprets information from equipment and system manuals, specifications and relevant enterprise documentation |
| Writing | 2.2, 4.1, 5.1, 5.2 | • Prepares clear and concise workplace documentation, including reports and recommendations, incorporating technical language to communicate complex information clearly and effectively |
| Numeracy | 1.2, 1.3 | • Extracts and evaluates mathematical data embedded in a range of technical information |
| Navigate the world of work | 1.5, 2.3 | • Considers and adheres to organisational procedures and protocols and legal and regulatory responsibilities when planning and undertaking work |
| Interact with others | 3.3, 4.1 | • Selects and uses appropriate conventions and protocols when communicating with personnel in a range of work contexts |
| Get the work done | 1.1-1.5, 2.1, 2.2, 3.1-3.4, 4.2, 4.3, 5.3, 5.4 | • Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options and seeking input and advice from others, if necessary<br>• Uses formal processes to monitor implementation of solutions and reflect on outcomes<br>• Uses digital systems and tools to enter, store and analyse data |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN606 Manage a common | ICTTEN6047A Manage a common | Updated to meet Standards | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| channel signalling network | channel signalling network | for Training Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN606 Manage a common channel signalling network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- identify and implement repair action within service assurance guidelines
- analyse and interpret alarms including common channel signalling (CCS) and digital path
- apply enterprise fault management priorities and escalation procedures
- resolve problems in a methodical and logical manner
- conduct appropriate tests and interpret results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain acceptance tests
- summarise alarm set-ups
- explain principles of the following aspects of common channel signalling (CCS):
  - architecture
  - protocols
  - signalling
  - testing
- describe CCS data and signalling pathways
- explain repair and restoration procedures
- outline switching network equipment operation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site with CCS network
- tests and equipment currently used in industry
- relevant legislation, codes, regulations and standards.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to identify faults across all network types, with collaboration from the network operations centre (NOC), and resolve any problems.

It applies to individuals working as network engineers, telecommunications officers, installers, maintenance staff and manufacturers or equipment specialists. It also applies to NOC staff in advisory roles and technical rectification roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Research fault background | 1.1 Analyse current, relevant data and previous actions taken by other personnel<br>1.2 Research areas of similarity to network fault<br>1.3 Develop commercial and technical strategies with equipment vendor and NOC for diagnosing the fault |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Address and discuss all work health and safety (WHS) issues with relevant personnel<br>1.5 Obtain appropriate clearance and access to network equipment, software and firmware codes where they apply |
| 2. Diagnose fault | 2.1 Apply a methodical approach to isolate and diagnose the problem<br>2.2 Simulate fault in a workshop or laboratory environment if possible<br>2.3 Seek support from the vendor while investigation progresses<br>2.4 Instruct on-site technical staff to run appropriate tests and analyse results<br>2.5 Diagnose network fault using established methodical strategies in a timely fashion without undue disruption to other services<br>2.6 Develop a plan to rectify the fault |
| 3. Organise fault rectification | 3.1 Recommend fault rectification plan to the NOC, including any outages, seek approval and adjust plans accordingly<br>3.2 Instruct on-site repairers with clear and methodical instructions on how to proceed in rectifying the fault<br>3.3 Organise replacement or repair of faulty equipment with appropriate advice from vendors and manufacturers<br>3.4 Reconfigure replaced or repaired equipment and test rectified fault to ensure required performance<br>3.5 Notify NOC, affected customers and on-site staff of fault rectification |
| 4. Report and document fault details and rectification | 4.1 Notify vendors of repair details and recommend changes to equipment design where appropriate<br>4.2 Conduct cause and effect studies and forward results to the appropriate area for necessary action<br>4.3 Complete all administrative tasks and prepare a report including deficiencies, analysis and recommendations |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Organises, evaluates and interprets technical specifications and standards from a range of complex texts |
| Writing | 2.6, 3.1, 4.2, 4.3 | • Prepares clear and concise workplace documentation, including training instructions and reports, incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 2.3, 2.4, 3.1, 3.2, 3.5, 4.1 | • Clearly articulates requirements using language, tone and pace appropriate to audience and environment<br>• Uses active listening, observational and questioning techniques to identify different perspectives and confirm, clarify or revise understanding |
| Numeracy | 1.1 | • Extracts and evaluates technical data, including equipment specifications |
| Interact with others | 1.3, 2.3, 3.5, 4.1, 4.2 | • Selects and uses appropriate conventions and protocols when communicating with customers, vendors or technical personnel in a range of work contexts |
| Get the work done | 1.3, 1.4, 2.1, 2.2, 2.5, 3.3, 3.4 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to troubleshoot and diagnose issues<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Uses formal, analytical and lateral thinking techniques for diagnosing issues, generating and evaluating possible solutions and escalating issues to others when appropriate |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults | ICTTEN6091A Analyse and organise repair of highly complex telecommunications network faults | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN607 Analyse and organise repair of highly complex telecommunications network faults

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- diagnose network faults using established methodical strategies without undue disruption to other services
- recommend fault rectification plan to the network operations centre (NOC)
- instruct on-site repairers
- facilitate replacement or repair of faulty equipment with appropriate advice from vendors and manufacturers
- facilitate final testing of rectified faults to ensure required performance
- prepare report including deficiencies, analysis and recommendations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise fault escalation procedures
- explain fault-finding techniques and use of test equipment
- outline fault types and rectification
- outline the operation of integrated packet optical transport networks (P-OTNs)
- explain the use of International Telecommunication Union (ITU) ITU-T G.709 standard
- explain network protocols
- outline safety requirements and standards
- explain service agreements
- explain synchronous digital hierarchy (SDH)
- summarise transmission control protocol (TCP)-internet protocol (IP)
- summarise the following types of networks and equipment:


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- access
- broadband deployment
- cabling
- customer premises' equipment (CPE)
- IP networks for enterprise and customer systems and installations
- local area networks (LAN)
- telephony
- wide area networks (WAN).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where highly complex network faults may be demonstrated and analysed without jeopardising live traffic
- equipment currently used in industry
- design specifications and manufacturer's manuals and reference materials.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN608 Verify new software and hardware releases

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to authenticate compliance and compatibility of software and hardware to an existing system for new software and hardware releases for an existing system or new infrastructure for convergence to Next Generation Networks (NGN).

It applies to individuals with high-level technical skills who make use of software test routines and test hardware for performance to manufacturer's and design specifications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan testing of new software releases | 1.1 Obtain manuals, specifications and instructions associated with new releases and identify areas of uncertainty for confirmation with the vendor<br>1.2 Plan the testing environment of the software release and likely impact with network management centre<br>1.3 Determine resources required to assist with the test, and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | negotiate their availability<br>1.4 Determine and plan outage and notify network management centre as required<br>1.5 Notify customers of impact on the network during the test<br>1.6 Develop contingency plans to cater for likely problems during the test, including health and safety issues |
| 2. Test software and hardware units | 2.1 Load new software and conduct tests using appropriate test equipment according to vendor specifications<br>2.2 Evaluate test results to assess functionality and features of software and hardware according to vendor documentation<br>2.3 Test compatibility with existing network and take corrective action with vendor as required<br>2.4 Implement contingency plans in conjunction with network management if integrity of the network is compromised by the new release |
| 3. Undertake administrative work | 3.1 Document test results and store according to enterprise policy<br>3.2 Discuss ongoing or likely problems with the vendor and initiate follow-up arrangements to ensure a permanent solution<br>3.3 Provide clearance for software and hardware release to be put in service in the system, according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 2.2, 3.1, 3.3 | • Organises, evaluates and interprets technical documentation including software and hardware manuals, specifications and relevant enterprise policy and documentation |
| Writing | 1.4-1.6, 3.1, 3.3 | • Prepares clear and concise workplace documentation, including reports and recommendations, incorporating technical language to communicate complex information clearly and effectively |


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| | | |
|---|---|---|
| Oral Communication | 1.3-1.5, 3.2 | • Clearly articulates requirements and likely challenges when engaging with enterprise personnel, customers and contractors using relevant language suitable to diverse audiences and employs listening and questioning techniques to confirm understanding |
| Numeracy | 2.2 | • Extracts and evaluates technical data, including equipment specifications during testing phase |
| Navigate the world of work | 3.1, 3.3 | • Adheres to organisational procedures and protocols when planning and undertaking work |
| Interact with others | 1.1, 1.2, 1.5, 3.2 | • Selects and uses appropriate conventions and protocols when communicating with customers, vendors or technical personnel in a range of work contexts<br>• Collaborates and cooperates with others to achieve joint outcomes |
| Get the work done | 1.1-1.4, 2.1, 2.3, 2.4 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Uses advanced features of digital systems and tools to enter, store, test and analyse data<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Uses formal, analytical and lateral thinking techniques for diagnosing problems, and generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN608 Verify new software and hardware releases | ICTTEN6094A Verify new software and hardware releases | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN608 Verify new software and hardware releases

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- develop a plan for testing new software releases, including functionality and performance under load conditions
- develop a contingency plan recognising potential causes of problems and their impact on service levels
- test compatibility of software and hardware with existing system
- analyse impact of integration of new hardware and software release on the network and make recommendations for improvement.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain features and operating requirements of testing routines and equipment, key performance indicators (KPIs) and service level agreements
- explain information required to operate software and hardware according to a test specification
- outline manufacturer’s requirements for operation of equipment
- summarise specific organisational requirements relating to the activity and site conditions
- clarify system maintenance and upgrade procedures, codes of practice and other formal agreements impacting the work activity
- explain test methods, performance and integration requirements
- summarise typical issues and challenges that occur with new software and hardware releases.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a system to verify compliance and compatibility of software and hardware
- test equipment currently used in industry
- systems manuals, vendor specifications and enterprise policy.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN609 Produce and evaluate architecture designs for convergent cellular mobile networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to specify design of the required mobile cellular general packet radio service (GPRS), third-generation (3G) and fourth-generation (4G) network architectures.

It applies to individuals with high-level technical skills who design and operate mobile wireless systems that meet the industry implementation of wireless convergence in telecommunications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and prepare for design of cellular mobile networks | 1.1 Analyse requirements of the mobile network<br>1.2 Examine technical characteristics of the GPRS systems<br>1.3 Develop network architecture for a GPRS network, in addition to the circuit-switched domain of 2G (Generation)<br>1.4 Review 3G structure and identify network requirements to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | provide a wide variety of services ranging from voice and paging services to interactive multimedia, including teleconferencing and internet access<br>1.5 Examine technical characteristics, data rates, operating frequencies and multiplexing schemes of the 3G system<br>1.6 Establish positioning and types of antennas, terminals, processors, required protocols and architecture, based on technical specifications and requirements |
| 2. Design a GPRS (2.5G) cellular network | 2.1 Investigate how 2.5G GPRS overlays the GSM network to transmit and receive transmission control protocol (TCP) and/or internet protocol (IP) based data to and from GPRS mobile devices |
| 3. Design a 3G cellular network | 3.1 Develop network architecture for a 3G network and explain functions of the network elements<br>3.2 Integrate a 3G network with a wireless local area network (WLAN) |
| 4. Research and evaluate design features of proposed 4G cellular network | 4.1 Investigate how a fully IP-based 4G system will provide an end-to-end IP integrated solution for voice, data and streamed multimedia to end-users roaming anytime and anywhere<br>4.2 Investigate access schemes of a 4G network<br>4.3 Investigate the implication for Internet Protocol version 6 (IPv6) in relation to 4G support of a greater number of IP-based wireless devices with applications for improved multicast, security and route minimisation capabilities<br>4.4 Investigate use of advanced antenna systems to enable 4G with high rate, high reliability and long range communications |
| 5. Produce reports for architectural design for cellular networks | 5.1 Present a report on the impact of competing technologies on each other and get consensus on concepts<br>5.2 Investigate potential interoperability and global roaming issues that may be faced by GSM, 2.5G, 3G and 4G cellular technologies |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.1, 4.1-4.4, 4.6, 5.2 | • Comprehends and evaluates technical specifications to plan and prepare for complex cellular design work |
| Writing | 1.3, 5.1 | • Prepares clear and concise workplace documentation, including reports and recommendations, incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 5.1 | • Uses specific and relevant language to clearly articulate technological issues |
| Numeracy | 1.5 | • Extracts and evaluates technical data, including equipment specifications during testing phase |
| Get the work done | 1.1-1.6, 2.1, 3.1, 3.2, 4.1-4.4, 5.2 | • Plans strategic priorities and outcomes within a flexible, efficient and effective context in a diverse environment exposed to competing demands<br>• Considers strategic and operational potential of digital trends to achieve work goals, enhance work processes and create opportunities<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Uses formal, analytical and lateral thinking techniques for diagnosing problems and generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN609 Produce and evaluate architecture designs for convergent cellular mobile networks | ICTTEN6169A Produce and evaluate architecture designs for convergent cellular mobile networks | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN609 Produce and evaluate architecture designs for convergent cellular mobile networks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- provide a detailed summary of the client's business domain when designing network
- provide a detailed summary of current industry-accepted network hardware and software products and their general features and capabilities, when designing a general packet radio service (GPRS) (2.5G) and 3G network
- design viable GPRS (2.5G) and 3G network solutions to meet particular business needs
- research design features of 4G cellular networks.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline general features and capabilities of current industry security products, devices and procedures
- provide detailed information regarding global system for mobile (GSM), GPRS (2.5G) and 3G network design
- provide a detailed summary of current industry-accepted cellular mobile network protocols
- summarise technical characteristics of GPRS systems including:
  - capability classes and multi-slot classes
  - coding schemes
  - data rates
  - management systems when evaluating roaming features
  - operating frequencies and modulation schemes


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    - remote user issues when establishing siting and types of antennas, terminals, processors, required protocols and GPRS (2.5G) and 3G network architecture, based on technical specifications and user requirements
- explain concepts of three or more current industry network development and design methodologies used when designing networks.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- cellular mobile network structures
- client requirements
- expected traffic volume
- information on a range of IT business solutions
- technical specifications
- vendors and vendor offerings and pricing.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN610 Design and configure an IP-MPLS network with virtual private network tunnelling

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design an internet protocol-multiprotocol label switching (IP-MPLS) network, examine MLPS data flow and configure virtual private network (VPN) tunnelling.

It applies to individuals with excellent technical skills including designers and installers of Next Generation Networks (NGN). These IP networks provide fast internet, voice over internet protocol (VoIP) and internet protocol TV (IPTV) services.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and design IP-MPLS network to meet business requirements | 1.1 Determine IP-MPLS network design requirements in consultation with enterprise customer<br>1.2 Optimise factors affecting design<br>1.3 Use label stacking to route MPLS packets in the network to build of MPLS services |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Dimension layer-3 generation of core backbone to allow MPLS IP-VPN to provide MPLS convergence services<br>1.5 Use MPLS control plane to set up wavelengths<br>1.6 Produce design topology of a MPLS network to include location and types of edge label switch routers (LSR) and core LSRs in agreement with enterprise customer |
| 2. Configure MPLS network and verify traffic engineering (TE) considerations | 2.1 Configure edge and core LSRs to provide secure methods of transporting IP packets in the MPLS network using layer 2 protocols<br>2.2 Configure LSRs to provide toll bypass for convergence of voice and data over IP network<br>2.3 Classify traffic in MPLS terms and configure edge LSR to sort traffic into forward equivalent classes (FECs)<br>2.4 Install and remove two standardised signalling protocols for managing traffic engineering (TE) of MPLS paths<br>2.5 Configure MPLS-TE to provide routing on diverse paths to avoid congestion and guarantee bandwidth services |
| 3. Configure VPN and provide a virtual private LAN service (VPLS) | 3.1 Configure a MPLS VPN tunnel for a customer network to provide multipoint-to-multipoint VPN connectivity<br>3.2 Build a content hosting server into a MPLS based VPN to produce a media network<br>3.3 Use virtual private LAN services (VPLS) as a VPN method for wide area network (WAN) multipoint-to-multipoint ethernet connectivity spanning multiple metropolitan areas<br>3.4 Produce VPLS topology using an internet protocol IP-MPLS cloud with provider edge (PE) routers connecting VPLS domains associated with an enterprise customer |
| 4. Complete documentation | 4.1 Produce a final design plan including network elements, configuration details and recommendations for design changes<br>4.2 Notify customer and obtain sign-off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Writing | 4.1 | • ,Prepares clear and concise workplace documentation including incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.1, 1.6 | • Engages with customers, about technical and operational matters, using clear language and active listening, observational and questioning techniques to confirm, clarify or revise understanding |
| Interact with others | 1.1, 1.6, 4.2 | • Selects and uses appropriate conventions and protocols when consulting or negotiating with customers |
| Get the work done | 1.2-1.6, 2.1-2.5, 3.1-3.4 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high impact activities with strategic implications<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Uses formal, analytical and lateral thinking techniques for diagnosing problems and generating and evaluating possible solutions<br>• Considers the strategic and operational potential of digital trends to achieve work goals, enhance work processes and create opportunities<br>• Uses digital systems and tools to enter, store and analyse data |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN610 Design and configure an IP-MPLS network with virtual private network tunnelling | ICTTEN6172A Design and configure an IP-MPLS network with virtual private network tunnelling | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN610 Design and configure an IP-MPLS network with virtual private network tunnelling

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- plan and design a multiprotocol label switching (MPLS) network that meets business requirements
- configure and test the MPLS network according to specified guidelines
- produce design topology of a MPLS network
- produce a final design plan including network elements, configuration details and recommendations for design changes
- implement secure virtual private network (VPN) tunnelling.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explore current industry-accepted hardware and software products used in an IP-MPLS network
- explain MPLS IP-VPN network operating systems including:
  - transmission technologies
  - protocols
- describe the effect of the customer's business domain, function and organisation on customer requirements and network equipment.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering of work and include access to:

- a live network and networked computers
- network design documentation, equipment specifications and organisational guidelines
- network components, routers, switches and multi-layer switches.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN611 Produce an ICT network architecture design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to compile and evaluate business specifications from a client, and produce a set of architecture design solutions to cater for present and future forecast demands.

It applies to individuals working in the field who carry out design and implementation of technical solutions of information communications technology (ICT) networks, employed by telecommunications and information technology networking provisioning companies specialising in integrating converging and emerging technologies of ICT networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to produce ICT architecture design | 1.1 Obtain the client's business specifications and business requirements from appropriate person<br>1.2 Review specifications and requirements to identify the type of ICT network and network specifications required<br>1.3 Consult with key stakeholders to identify their requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Assess business problems, opportunities and objectives, and confirm details with appropriate person |
| 2. Produce preliminary ICT network architecture design | 2.1 Ascertain technical requirements, including hardware, software and network elements according to specifications<br>2.2 Select software solutions to suit business platform<br>2.3 Develop preliminary physical network diagrams as a preface to architecture blueprint<br>2.4 Produce a document on the possible impact of the network design on the business requirements |
| 3. Evaluate preliminary design and likely performance using forecast demands | 3.1 Predict forecast traffic demands, and impact on network design, from current and future demand requirements<br>3.2 Benchmark design using expected performance parameters<br>3.3 Review design's likely performance profile<br>3.4 Determine costs involved with a range of supplier products<br>3.5 Produce an evaluation report on predicted performance and costs of the network architecture design, addressing business specifications and recommendations |
| 4. Finalise network design and obtain approval | 4.1 Review benchmarks, requirements and final design proposed<br>4.2 Determine support and training requirements needed<br>4.3 Obtain latest technical specifications and pricing by contacting possible vendors<br>4.4 Document network design and present documentation to appropriate person for approval<br>4.5 Obtain sign off on final business solution |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1, 4.1 | • Organises, evaluates and interprets technical documentation and relevant enterprise policy and documentation |


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| | | |
|---|---|---|
| Writing | 2.3, 2.4, 3.5, 4.4 | • Prepares clear and concise workplace documentation, including diagrammatic material, incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.1, 1.3, 1.4 | • Participates in verbal exchanges using clear language and active listening, observational and questioning techniques to confirm, clarify or revise understanding |
| Numeracy | 3.4, 3.5 | • Interprets numerical information according to business requirements and specifications to evaluate possible technical design scenarios within budgetary constraints |
| Interact with others | 1.3, 4.3-4.5 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts |
| Get the work done | 1.4, 2.2, 3.1-3.3, 4.2 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses this to propose solutions<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Uses formal, analytical and lateral thinking techniques for diagnosing problems and generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN611 Produce an ICT network architecture design | ICTTEN6206A Produce an ICT network architecture design | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN611 Produce an ICT network architecture design

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- adapt technologies to specified technical solutions
- use site design software and hardware
- evaluate client specifications against accepted industry practices
- produce technical designs from business specifications
- analyse feedback from client and make proposal adjustments
- apply design concepts to business solutions
- produce technical reports
- make recommendations and offer optimum design solutions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise principles of the following technologies:
  - access networks
  - core networks
  - information communications technologies (ICT) network topologies
  - mobile cellular networks
  - network protocols and operating systems
  - optical networks and principles
  - radio frequency (RF) technologies and principles
  - radio frequency identification (RFID) hardware and software
- explain what is meant in the ICT sector by business processes


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- explain compatibility issues and resolution procedures
- summarise configuration of internet protocol (IP) networks
- outline desktop applications and operating systems
- summarise security protocols, standards and data encryption.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site for design work
- client functional requirements
- business specifications
- database software
- simulation software
- organisational guidelines
- a network or computer layout
- site design software and hardware
- information on a range of ICT business solutions.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN612 Design and manage internet protocol TV in a service provider network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design a multiprotocol label switching (MPLS) network for internet protocol TV (IPTV) and manage delivery of IPTV services. This includes core and access networks for the service provider.

It applies to individuals with outstanding technical skills, including designers and installers of Next Generation Networks (NGN), IP networks providing fast internet, voice over internet protocol (VoIP), IPTV and internet TV services.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Produce and evaluate design requirements for an IPTV network | 1.1 Analyse major video models and the impact video challenges have on design of an IPTV network<br>1.2 Evaluate IPTV against other competing TV broadcast technologies to determine optimum design approach<br>1.3 Produce the topology of an IPTV network, showing network architecture from IPTV standards' bodies and determine design requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Plan dimensioning of network parameters for multicast and unicast video delivery over broadband in a service provider network |
| 2. Design an IPTV network for video on demand (VoD) delivery | 2.1 Design the content delivery system (CDS) to cache IPTV content in each major metropolitan area for broadcast or streaming VoD models to eliminate performance variability introduced by internet transport or core peering relationships<br>2.2 Design a video network to provide VoD loads with network solutions using VoD design requirements<br>2.3 Design a VoD application to meet bandwidth requirements and quality of service (QoS) requirements for commercial viability of IPTV network |
| 3. Design and configure an MPLS IPTV network to meet business requirements | 3.1 Determine IP-MPLS network design requirements<br>3.2 Investigate factors that affect design considerations and ways they can be minimised<br>3.3 Produce the design topology of a MPLS network to provide secure methods of transporting IP packets using layer 2 protocols<br>3.4 Design a MPLS layer over the IP networking structure, to combine efficiency of multicast protocols with traffic engineering (TE) facilities to enable fast packet forwarding for real time video streaming applications |
| 4. Manage delivery of IPTV services | 4.1 Determine operational processes required to support IPTV by operators<br>4.2 Produce a plan of the management and customer support model, including strategies dealing with delivery of VoD issues<br>4.3 Produce a plan of a video network using video delivery strategies to deliver optimum average revenue per user (ARPU) to serve the demographic of an area and the nature of an operator’s business<br>4.4 Manage and monitor video across the network using a management tool |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance | Description |
|---|---|---|


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| | **Criteria** | |
|---|---|---|
| Reading | 1.3 | • Organises, evaluates and interprets standards documentation to properly evaluate design requirements |
| Writing | 1.3, 3.3, 4.2, 4.3 | • Prepares clear and concise workplace documentation, including diagrammatic material, incorporating technical language to communicate complex information clearly and effectively |
| Numeracy | 4.3 | • Undertakes a cost-benefit analysis of services based on the nature of the operator's business and the demographic area served |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.1,-3.4, 4.1-4.4 | • Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• Experiments with possibilities of new systems, devices and applications before conducting a more sophisticated analysis of benefits and costs<br>• Uses digital tools to access and organise complex data and analyse multiple sources of information for strategic purposes<br>• Uses formal, analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN612 Design and manage internet protocol TV in a service provider network | ICTTEN6216A Design and manage internet protocol TV in a service provider network | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN612 Design and manage internet protocol TV in a service provider network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- produce and evaluate design requirements for an internet protocol TV (IPTV) network
- design IPTV network for voice on demand (VoD) delivery
- design and configure a multiprotocol label switching (MPLS) IPTV network to meet business requirements
- manage delivery of IPTV services.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate competing video delivery over broadband networks
- explore current industry-accepted IPTV hardware and software products
- summarise networking technologies including:
  - network operating systems
  - internet protocol (IP) networks
  - MPLS networks
- explain IPTV transmission technologies and protocols.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:


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- protocols, configuration documents, management tools and standards
- network and demographic trends, and customer demand data.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN801 Plan a transmission network

## Modification History

| Release | Comments |
|---|---|
| Version 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse requirements and plan a new or upgraded telecommunication transmission network or convergence to Next Generation Networks (NGN).

It applies to individuals with high-level technical skills working as technical officers, supervisors and engineers working with optical, dense wavelength division multiplexing (DWDM), fibre networks and wireless networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope the project | 1.1 Obtain and interpret relevant legislation, codes, regulations and standards including work health and safety (WHS) and environmental requirements for the given work<br>1.2 Obtain project brief from appropriate person<br>1.3 Evaluate potential transmission options and select most suitable type of transmission network that meets criteria outlined |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | in project brief<br>1.4 Analyse limitations of transmission path characteristics and develop solutions for transmission impairments<br>1.5 Produce a report outlining reasons for selection of a transmission network, together with a shortlist of suitable equipment vendors and products<br>1.6 Obtain traffic load from network information sources or forecasts, and then dimension the proposed network service<br>1.7 Produce brief on relationship between transmission network architecture components and overall network, and their impact on the work<br>1.8 Evaluate equipment type and technologies to determine availability, cost and compatibility with existing network equipment<br>1.9 Determine resources and equipment needed for work according to enterprise procedures and check for correct operation and safety<br>1.10 Assess capacity limitation of various platforms in context of the work to optimise maximum network performance<br>1.11 Determine product capability and calculate allowable capacity of transmission network to allow for network growth |
| 2. Produce link budget | 2.1 Critically analyse transmission system using equipment and vendor's specifications to produce a link budget and assess resulting margin<br>2.2 Document results of link budget analysis |
| 3. Produce deployment plan for transmission network | 3.1 Conduct planning work using current equipment components and complying with transmission network deployment rules and exemption process criteria<br>3.2 Produce preliminary plan on network deployment that maintains transmission network integrity<br>3.3 Establish a solution to unexpected situations through discussion with appropriate personnel, with consideration to job specifications, safety and enterprise procedures<br>3.4 Review plan to ensure it complies with all standards and codes required when working on network access, and make adjustments where appropriate |
| 4. Complete work | 4.1 Produce final deployment plan including recommendations agreed with customer<br>4.2 Provide report on network management and performance |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | monitoring system to be incorporated in the transmission network to ensure network is performing at optimum level |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.9, 3.4 | • Organises, evaluates and interprets complex technical and non-technical information including legislative, enterprise and policy documentation |
| Writing | 1.5, 1.7, 2.2, 3.2, 3.4, 4.1, 4.2 | • Prepares clear and concise workplace documentation, including reports and recommendations, incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 1.2 | • Uses highly developed listening, observational and questioning skills to understand project scope and clarify and explore meaning |
| Numeracy | 1.8, 1.11, 2.1 | • Interprets numerical information to determine business costs and undertake link budget calculations, interpret results and evaluate different types of technical data |
| Navigate the world of work | 1.1, 1.9, 3.3, 3.4 | • Monitors adherence to organisational policies and protocols and legal and regulatory requirements of self and others |
| Interact with others | 1.6, 3.3 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in various work contexts<br>• Collaborates with others to achieve joint outcomes, taking the lead in identifying all issues and facilitating agreement |
| Get the work done | 1.3, 1.4, 1.8, 1.9, 1.10, 1.11, 2.1, 3.1, 3.3 | • Uses combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to understand uses and potential of technology<br>• Implements actions according to a predetermined plan, |


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| | | |
|---|---|---|
| | | making adjustments if necessary<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN801 Plan a transmission network | ICTTEN7193B Plan a transmission network | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PC's to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN801 Plan a transmission network

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate potential transmission options and select most suitable type of transmission network
- analyse effect of transmission path characteristics on transmission systems
- develop solutions for transmission impairments
- select appropriate testing regimes for transmission technologies
- determine key multiplexing features of transmission technologies
- develop transmission network work plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline impact of relevant legislation, codes, regulations and standards involved with planning networks
- explain alternating current and transmission line theory
- compare emerging telecommunications switching and transmission technologies
- define network capacity and capability management
- outline capacity limitation of various platforms
- explain commercial considerations of Access Network deployment
- outline common switching and transmission support services
- explore compatibility issues for new technologies and equipment
- evaluate currency of technology and equipment under consideration
- explain data transmission
- summarise digital multiplexing techniques and hierarchies


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- clarify enterprise deployment rules
- explain exemption process criteria
- outline network topologies
- formulate product capability and availability that are allowable within a transmission network
- establish aspects of telecommunications when planning a network, including:
  - alarm management
  - bearers
  - performance monitoring systems
  - transmission:
  - architectures and geographical categorisation
  - information sources
  - technology and equipment
- determine a cost analysis for a planned network.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- a site to plan transmission network
- equipment and system manuals and specifications
- legislation and documentation to plan a transmission network.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN802 Manage alignment of systems with product and technology strategy

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop a technology roadmap and interface management system to align and integrate systems with a product and technology strategy.

It applies to individuals with technical and task management skills who measure network performance according to manufacturer's design specifications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop technology roadmap | 1.1 Critically analyse market research information and determine customer needs within product and technology strategy from a technology roadmap<br>1.2 Evaluate enterprise and technology issues which will affect design of the system, and translate them into system requirements<br>1.3 Evaluate program, product and technology needs that affect |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | definition of the system life-cycle<br>1.4 Develop systems integration, verification and validation plans from the design requirements<br>1.5 Develop and communicate key aspects on implementation of the technology roadmap to stakeholders and customers |
| 2. Develop interface management of system elements | 2.1 Determine system element interfaces and sources of complexity for interface management of the system<br>2.2 Develop a process and appropriate techniques to be adopted for interface management of system elements<br>2.3 Create a control process of system element interfaces of the management system<br>2.4 Liaise and arbitrate conflicts in the interfaces definition process |
| 3. Implement systems integration | 3.1 Evaluate suitability of system integration, verification and validation plans for the product and technology strategy of the technology road map for a consumer product<br>3.2 Develop systems integration, verification and validation plans for complex systems, including method and timing for each activity<br>3.3 Manage system integration plan and diagnose complex faults<br>3.4 Document fault conditions, report to appropriate person and follow up corrective actions<br>3.5 Prepare evidence for customer acceptance and certification of the system integration management plan for consumer product<br>3.6 Plan and manage a transition to operational activity of product |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 3.1 | • Organises, evaluates and interprets technical documentation, software and hardware manuals, specifications and relevant enterprise policy |
| Writing | 1.4, 3.2, 3.4, 3.5 | • Prepares clear and concise workplace documentation, including diagrammatic material incorporating |


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| | | |
|---|---|---|
| | | technical language, to communicate complex information clearly and effectively |
| Oral Communication | 1.1, 2.4 | • Participates in verbal exchanges using highly developed listening, observational and questioning skills to understand others' perspectives, and clarify, explore and extend meaning |
| Interact with others | 1.5, 2.4, 3.4 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts<br>• Collaborates with others to achieve joint outcomes, taking the lead in identifying issues and facilitating agreement |
| Get the work done | 1.2-1.5, 2.1-2.3, 3.1-3.4, 3.6 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to plan appropriate systems<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal analytical and lateral thinking techniques to resolve software, hardware and logistics problems |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN802 Manage alignment of systems with product and technology strategy | ICTTEN7219A Manage alignment of systems with product and technology strategy | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes | Equivalent unit |


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| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| | | to PC's to meet AQF requirements. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN802 Manage alignment of systems with product and technology strategy

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- plan implementation and testing of new system requirements, including system functionality and performance under load conditions
- manage interface elements of a new system
- implement systems integration
- recognise potential causes of problems and service level impact
- analyse impact of integration of system changes on network
- prepare documentation for customer acceptance and certification of system integration.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise technology issues for a specified enterprise
- explain integration, verification and validation plans
- summarise interface management systems
- outline legislation, codes of practice and other formal agreements directly impacting system integration
- summarise specific work health and safety (WHS) requirements that impact activity in terms of safety of self and the general public
- explain system element interfaces
- summarise system integration solutions techniques
- explain system life cycles
- define technology roadmaps.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- a site where alignment of computer support systems with a product and technology strategy may be conducted
- software tools currently used in industry
- vendor products, specifications, equipment and enterprise policy required for the activity.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN803 Translate domain and solution architectures into platform requirements and designs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop, deploy, manage and optimise the entire solution life cycle via translation for an existing or new infrastructure of Next Generation Technology (NGN).

It applies to individuals with highly developed technical skills who use design software and simulation to test system performance to a manufacturer's or design specification.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop system design requirements | 1.1 Produce system requirements specifications for a complex project involving enterprise and technology issues using the simplest possible technology and making the system modular<br>1.2 Resolve and negotiate requirement conflicts to establish a complete and consistent requirement set<br>1.3 Produce and develop acceptance criteria for requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Design a requirements management plan with categorisations, structures and sources of complexity<br>1.5 Develop a process to manage requirements, enabling users to influence future improvements |
| 2. Produce system design based on requirements | 2.1 Evaluate strengths and weaknesses of relevant technologies in context of the design requirement and needs for systems integration<br>2.2 Create range of alternative interdisciplinary concepts and assess their attributes<br>2.3 Plan for incorporation of later life-cycle design attributes while developing design requirements<br>2.4 Devise a system design strategy and approach, using tools and techniques to conduct functional analysis<br>2.5 Produce a set of parameters to track critical aspects of the design<br>2.6 Use documentation, modelling and simulation tools and techniques to represent a system or system element<br>2.7 Use complex simulations to evaluate design concepts for a system or system element<br>2.8 Produce a report to evaluate and advise on risks, suitability and limitations of models and simulations<br>2.9 Identify underlying domain-specific issues, strategy and approach to be adopted for ensuring system robustness<br>2.10 Produce a robust design using domain-specific strategy and approach for platform requirements and designs |
| 3. Verify solution design and traceability | 3.1 Align specific aspects of the design to original intent<br>3.2 Verify and track specific aspects of current design against original intent throughout the supply chain<br>3.3 Compare verification requirements with system requirements<br>3.4 Use change control and configuration management to implement remedial actions and change control for inconsistencies |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.6 | • Organises, evaluates and critiques ideas and information from a wide range of complex texts |
| Writing | 1.1, 1.3-1.5, 2.5, 2.8, 2.10 | • Demonstrates sophisticated writing skills by selecting appropriate conventions and stylistic devices to express precise meaning |
| Oral Communication | 1.2 | • Participates in verbal exchanges using appropriate tone and clear language to address key personnel<br>• Uses listening and questioning skills to confirm understanding |
| Interact with others | 1.2 | • Collaborates and negotiates to achieve agreeable outcomes in potentially contentious situations |
| Get the work done | 1.1, 1.5, 2.1-2.4, 2.6, 2.7, 2.9, 2.10, 3.1-3.4 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses this to analyse and design solutions<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Uses formal analytical and lateral thinking techniques for diagnosing problems and generating and evaluating possible solutions |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN803 Translate domain and solution architectures into platform | ICTTEN7220A Translate domain and solution architectures into platform | Updated to meet Standards for Training Packages. | Equivalent unit |


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| Code and title<br>current version | Code and title<br>previous version | Comments | Equivalence status |
|---|---|---|---|
| requirements and designs | requirements and designs | Recoded to meet AQF requirements. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN803 Translate domain and solution architectures into platform requirements and designs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop system design requirements
- evaluate design concepts for system or system element using complex simulations
- produce a system design using domain specific strategy to platform requirements and design
- use functional analysis tools
- verify solution design and traceability.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain complex simulation techniques
- summarise current enterprise platforms and designs
- outline design of management plans
- explain domain and solution architectures
- determine and summarise technological issues for a specified enterprise
- outline information required to simulate computer system elements according to a test specification
- explain interdisciplinary concepts and attributes
- explain life cycle design attributes
- contrast remedial actions and select control for inconsistencies
- explain solution design and traceability
- provide a detailed summary of tools required to conduct functional analysis.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- a site where development, deployment, management and optimisation of domain and solution architectures into platform requirements and designs can be undertaken
- documentation, modelling and simulation tools currently used in industry
- tests and equipment currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN804 Manage end to end architectural solutions across multiple domains

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse business options and design for network infrastructure service providers and implement end-to-end architectural solutions.

It applies to individuals with excellent technical, communication and planning skills working in project management roles with authority to direct installation activities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate tools and techniques for architectural design | 1.1 Apply principles of architectural design within the life cycle of application software<br>1.2 Develop a process to apply appropriate tools and techniques for architectural design of end-to-end solutions<br>1.3 Evaluate and select appropriate analysis and selection techniques to develop a partition between discipline technologies and derive discipline-specific requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Analyse design options for optimal solutions | 2.1 Critically analyse business options to support architectural design trade-offs for an optimal design solution<br>2.2 Develop alternative architectural designs traceable to the requirements<br>2.3 Evaluate a range of architectural solutions and justify selection of the optimum solution |
| 3. Develop interface requirements for effective solutions across multiple domains | 3.1 Evaluate system element interfaces and sources of complexity for interface management of the system across multiple domains<br>3.2 Develop a process and appropriate techniques to be adopted for the interface management of system elements for end-to-end architectural solutions<br>3.3 Produce a control process for system element interfaces of the management system<br>3.4 Liaise and arbitrate between stakeholders where there are conflicts in the definition of interfaces |
| 4. Manage end-to-end systems integration | 4.1 Evaluate suitability of system integration, verification and validation plans for end-to-end architectural solutions across multiple domains<br>4.2 Develop systems integration, verification and validation plans for complex systems to ensure a viable integration process<br>4.3 Manage system integration plan and diagnose complex faults<br>4.4 Document fault conditions, report to appropriate person and follow up corrective actions<br>4.5 Prepare evidence for customer acceptance and certification of the system integration management plan<br>4.6 Plan and manage a transition to operational activity for the end-to-end solution |
| 5. Incorporate components of an architecture from a third party | 5.1 Negotiate with vendor for acceptable vendor agreements and agreed roles and responsibilities of each party<br>5.2 Manage vendor within a clearly defined process for dealing with defects and scope changes<br>5.3 Plan beyond delivery of specific elements and establish requirements for ongoing maintenance and support from vendor |
| 6. Manage requirements for the architecture solution | 6.1 Negotiate minimum component costs with vendors and analyse vendor component costs as part of assessment for the appropriateness of vendor’s quote |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 6.2 Manage vendor selection process to provide high-quality solutions within appropriate costings |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1 | • Organises, evaluates and interprets a range of complex documentation to evaluate product and technology needs |
| Writing | 2.2, 2.3, 3.3, 4.2, 4.4, 4.5 | • Prepares clear and concise workplace documentation including reports and designs incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 3.4, 4.4, 5.1, 5.2, 6.1 | • Participates in verbal exchanges with key personnel, customers and contractors using appropriate tone and clear language<br>• Uses listening and questioning skills to confirm understanding |
| Interact with others | 3.4, 4.4, 5.1, 5.2, 6.1 | • Selects and uses appropriate conventions and protocols when communicating with customers, vendors or technical personnel in a range of work contexts<br>• Collaborates and negotiates to achieve agreeable outcomes in potentially contentious situations |
| Numeracy | 6.1 | • Interprets numerical information to determine best value-for-money solutions according to business requirements |
| Get the work done | 1.1-1.3, 2.1, 2.3, 3.1, 3.2, 4.1, 4.3, 4.4, 4.6, 5.3, 6.2 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses these to plan complex systems<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options |


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| | | |
|---|---|---|
| | | against agreed criteria<br>• Uses formal analytical and lateral thinking techniques for diagnosing problems and generating and evaluating possible solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN804 Manage end to end architectural solutions across multiple domains | ICTTEN7221A Manage end to end architectural solutions across multiple domains | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PC's to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN804 Manage end to end architectural solutions across multiple domains

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate tools and techniques for architectural design
- analyse design options for optimal solutions
- develop interface requirements for effective solutions across multiple domains
- manage end-to-end systems integration
- incorporate components of a third party architecture
- manage requirements for the architecture solution.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- provide a detailed summary of architectural design tools
- explain interface management
- outline management of end-to-end system integration
- summarise new end-to-end architecture design solutions
- explain solutions for business options across multiple domains
- outline system integration solution techniques
- summarise system interfaces
- explain validation plans
- explain importance of vendors' agreements with specific reference to roles and responsibilities of each party
- identify and quantify components’ costs.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- a site where architecture solutions across multiple domains can be managed
- simulation software tools currently used in industry
- vendor products, specifications, equipment and enterprise policy required for the activity.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN805 Manage solution architecture and impacts in line with organisational processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse business options to plan, develop and manage solution architecture systems integration across multiple architectures for a telecommunications service provider.

It applies to individuals with excellent technical, communication and planning skills working in project management roles with authority to direct installation activities.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop plan to support architectural design process | 1.1 Prepare a plan with techniques to support the architectural design process and communicate the solution to different stakeholder groups<br>1.2 Critically analyse business options to support architectural design trade-offs for optimal design solution<br>1.3 Evaluate strengths and weaknesses of relevant technologies in |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | context of the requirement<br>1.4 Assess a range of interdisciplinary concept ideas and effect their attributes would have on the design requirements<br>1.5 Prepare a solutions architecture plan detailing all possible solutions |
| 2. Develop interface requirements for effective solutions across multiple architectures | 2.1 Evaluate system element interfaces and sources of complexity for interface management of the system across multiple architectures<br>2.2 Develop a process and appropriate techniques to be adopted for interface management of system elements for solution architecture<br>2.3 Produce a control process of system element interfaces of the management system<br>2.4 Liaise and arbitrate between stakeholders where there are conflicts in definition of interfaces |
| 3. Manage solution architecture systems integration | 3.1 Evaluate suitability of system integration, verification and validation plans for solution architecture from requirements<br>3.2 Develop systems integration, verification and validation plans for complex systems to ensure viable integration process<br>3.3 Manage system integration plan and diagnose complex faults<br>3.4 Document fault conditions, report to appropriate person and follow up corrective actions<br>3.5 Prepare evidence for customer acceptance and certification of system integration management plan<br>3.6 Plan and manage a transition to operational activity for the solution architecture |
| 4. Manage solution implementation and notify stakeholder groups | 4.1 Produce final project management requirements against solution architecture plan and notify stakeholder groups of impending implementation<br>4.2 Evaluate impact of proposed project solutions on customers and enterprise<br>4.3 Manage solution architecture activities as part of overall project plan and monitor solution architecture risks<br>4.4 Manage amendments to solution architecture processes to meet needs of the project and apply necessary corrective actions |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.1 | • Organises, evaluates and interprets a range of complex documentation such as software and hardware manuals |
| Writing | 1.1, 1.5, 3.2, 3.4, 3.5, 4.1 | • Prepares clear and concise workplace documentation, including recommendations, incorporating technical language to communicate complex information clearly and effectively |
| Oral Communication | 2.4 | • Participates in verbal exchanges using tone and language appropriate to audience and environment |
| Interact with others | 2.4, 3.4, 4.1 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts<br>• Collaborates and negotiates to achieve agreeable outcomes in potentially contentious situations |
| Get the work done | 1.2-1.4, 2.1-2.3, 3.1, 3.3, 3.4, 3.6, 4.2-4.4 | • Operates from a broad conceptual plan, developing operational detail in stages, regularly reviewing priorities and performance during implementation, identifying and addressing issues<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses this to prepare proposals<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal analytical and lateral thinking techniques to resolve domain, technology and logistics problems<br>• Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles and their impact on customers and enterprise |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN805 Manage solution architecture and impacts in line with organisational processes | ICTTEN7222 A Manage solution architecture and impacts in line with organisational processes | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PCs to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN805 Manage solution architecture and impacts in line with organisational processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare an architecture plan exploring a range of alternative solutions
- develop interface requirements for effective solutions across multiple architectures
- manage solution architecture systems integration
- analyse impact of proposed project solutions on customers and enterprise
- prepare evidence for customer acceptance and certification of system integration management plan
- produce final project management requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and define features and operating requirements of complex systems, key performance indicators (KPIs) and service level agreements
- outline information required to define solution architecture and impacts in line with organisational processes
- summarise interdisciplinary concepts across multiple architectures
- outline issues and challenges occurring with system changes
- explain legislation, codes of practice and other formal agreements directly impacting system integration
- summarise manufacturer’s requirements for operation of systems equipment
- identify and critique relevant organisational policies and procedures
- outline performance and integration requirements
- summarise solutions architecture alternatives


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- summarise specific work health and safety (WHS) requirements that impact activity in terms of safety of self and the public
- outline system element interfaces for solution architecture
- explain system integration plans
- explain validation plans.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- a site where development and management of solution architecture systems integration across multiple architectures may be conducted
- software tools currently used in industry
- vendor products, specifications, equipment and enterprise policy required for the activity.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN806 Manage application layer solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop, evaluate, manage, deploy and maintain application layer solutions for new solutions or existing network telecommunications service.

It applies to individuals with highly developed technical skills working as network engineering staff or senior technical officers with appropriate project management roles and authority to direct activities of installation staff, manufacturers and vendors.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications networks engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop application layer solutions | 1.1 Produce requirements for applications layer solutions for delivery of new applications layer solutions to customers using forecasting demand data<br>1.2 Prepare a plan for an organisational change control process and integration of new solutions within a complete network infrastructure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Produce a test management schedule for the testing process of application product<br>1.4 Translate complex design and architecture requirements to traceable application characteristics according to design requirements<br>1.5 Develop application architecture solution specifications using an industry process according to design requirements<br>1.6 Develop application software resource profiling and select suitable vendor for negotiations<br>1.7 Translate complex requirements into software packaging<br>1.8 Produce software deployment mapping and version control to ensure complete integration and compatibility of application solution with existing system<br>1.9 Complete configuration management and provide complex input network design requirements |
| 2. Critically analyse test results of application layer solutions | 2.1 Use design document and integration document software to replicate issues exhibited in test environment<br>2.2 Certify software solution compatibility and compliance to requirements using a web-based test management tool (quality centre) to conduct performance evaluation tests<br>2.3 Critically analyse test reports to evaluate load balancing and network security issues in test environment<br>2.4 Resolve complex issues in interface to isolate defects |
| 3. Manage deployment of application layer solutions | 3.1 Plan and prepare evidence for customer acceptance and certification<br>3.2 Plan and manage transition to operation activities required for transition to operation of integrated application layer solution<br>3.3 Prepare installation failures procedure to make changes while maintaining service levels<br>3.4 Manage change implementation plan to maintain system stability |
| 4. Maintain currency of application layer solutions | 4.1 Manage ongoing monitoring activities to prolong new applications layer solution life cycle for cost-effective business reasons<br>4.2 Produce tuning activities to make efficient use of resources<br>4.3 Analyse current demands for resources to derive forecasts and future requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.4 Produce a capacity plan predicting infrastructure resource needs to achieve agreed service levels |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 1.5, 2.3 | • Organises, evaluates and interprets a range of complex technical documentation including software and hardware manuals |
| Writing | 1.2, 1.3, 1.8, 3.3, 4.4 | • Prepares clear and concise workplace documentation including complex plans incorporating technical language to communicate complex information clearly and effectively |
| Numeracy | 1.1, 2.3, 4.1 | • Analyses and synthesises highly embedded mathematical information in a broad range of tasks and texts |
| Get the work done | 1.4-1.6, 1.8, 1.9, 2.1-2.4, 3.1, 3.2, 3.4, 4.1-4.4 | • Operates from a broad conceptual plan, developing operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses this to devise solutions<br>• Uses a broad range of strategies to store, access and organise virtual information, recognising design choices will influence what information is retrieved and how it may be interpreted and used<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal analytical and lateral thinking techniques to resolve logistics problems<br>• Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles and their impact on customers and enterprise |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN806 Manage application layer solutions | ICTTEN7223A Manage application layer solutions | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to elements and PCs to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN806 Manage application layer solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce a test management schedule for testing process of application product
- develop application architecture solution specifications using an industry process
- produce software deployment mapping and version control
- analyse test results of application layer solutions
- prepare evidence for customer acceptance and certification
- prepare an installation failures procedure
- manage ongoing monitoring activities
- produce tuning activities
- produce a capacity plan predicting infrastructure resource needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain installation failure procedures
- summarise legislation, codes of practice and other formal agreements that directly impact activity
- explain important tenets of managing change
- explain new applications layer solutions
- define software and hardware resources required by an application layer
- outline specific workplace health and safety (WHS) requirements that impact activity in terms of safety of self and the public
- outline system integration techniques
- explain test management scheduling


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- summarise tuning activities to maintain currency
- explain use of forecasting demand data
- explain use and purpose of test management tools.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- a site where management of application layer solutions may be conducted
- software tools currently used in industry
- vendor products, specifications, equipment and enterprise policy required for the activity.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN807 Manage voice, data and internet protocol network solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to integrate new solutions to an existing network and manage change implementation.

It applies to individuals with excellent technical skills working as network engineering or senior technical staff within project management roles with authority to direct activities of installation staff, manufacturers and vendors.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop voice, data and IP network solutions | 1.1 Produce requirements for voice, data and IP network solutions for delivery of new voice, data and IP networks to customers using forecasting demand data<br>1.2 Prepare plan for organisational change control process and integration of new solutions within a complete network infrastructure |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Produce test management schedule for testing process of network product solution<br>1.4 Translate complex design and architecture requirements to traceable software application characteristics according to design requirements<br>1.5 Develop network architecture solution specifications using industry process according to design requirements<br>1.6 Develop software and hardware resource profiling and select suitable vendor for negotiations<br>1.7 Translate complex requirements into software packaging<br>1.8 Produce software deployment mapping and version control to ensure complete integration and compatibility of network application solution to existing system<br>1.9 Complete configuration management and provide complex input network design requirements |
| 2. Critically analyse test results of voice, data and IP network solutions | 2.1 Use design document and integration document software to replicate issues exhibited in test environment<br>2.2 Certify software solution compatibility and compliance to requirements using web-based test management tool (quality centre) to conduct performance evaluation tests<br>2.3 Critically analyse test reports to evaluate load balancing and network security issues in test environment<br>2.4 Resolve complex issues in interface to isolate defects |
| 3. Manage deployment of voice, data and IP network solutions | 3.1 Plan and prepare evidence for customer acceptance and certification<br>3.2 Plan and manage transition to operation activities required for transition to operation of integrated IP network solution<br>3.3 Prepare installation failures procedure to make changes while maintaining service levels<br>3.4 Manage change implementation plan to maintain system stability |
| 4. Maintain currency of voice, data and IP network solutions | 4.1 Manage ongoing monitoring activities to prolong new IP network solution life cycle for cost-effective business reasons<br>4.2 Produce tuning activities to make efficient use of resources<br>4.3 Analyse current demand for resources to derive forecasts and future requirements<br>4.4 Produce a capacity plan predicting infrastructure resource |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | needs to achieve agreed service levels |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.4, 1.5, 2.3 | • Organises, evaluates and interprets complex technical documentation, such as software and hardware manuals and design specifications |
| Writing | 1.3, 1.5, 1.9, 3.1, 3.3, 4.4 | • Prepares clear and concise workplace documentation including reports and recommendations incorporating technical language to communicate complex information clearly and effectively |
| Numeracy | 1.1, 2.3, 4.1, 4.3 | • Uses numerical information to interpret results, evaluate different types of technical data, take measurements and determine cost-effective outcomes |
| Get the work done | 1.1-1.8, 2.1, 2.2, 2.4, 3.1, 3.2, 3.4, 4.1, 4.4 | • Uses combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses this to devise solutions<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal analytical and lateral thinking techniques for identifying issues, and developing and evaluating procedures for network solutions |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN807 Manage voice, data and internet protocol network solutions | ICTTEN7224A Manage voice, data and internet protocol network solutions | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PCs to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN807 Manage voice, data and internet protocol network solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce a test management schedule
- develop network architecture solution specifications
- develop software and hardware resource profiling and select suitable vendor for negotiations
- undertake configuration management of voice, data and internet protocol (IP) network, and provide complex input network design requirements
- analyse test reports to evaluate load balancing and network security issues
- plan and prepare evidence for customer acceptance
- prepare installation failures procedure
- produce tuning activities to enable efficiencies
- produce capacity plan predicting infrastructure resource needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise installation failure procedures
- investigate change management strategies relevant to introduction of new technologies
- explain new IP network solutions
- identify and contrast software and hardware resources relevant to project
- explain system integration techniques
- explain test management scheduling
- provide detailed summary of tuning activities necessary to maintain currency
- explain use of forecasting demand data


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- identify and contrast various test management tools.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- a site where management of voice, data and IP network solutions can be undertaken
- software and hardware resources suitable for developing, deploying and managing voice, data and IP network solutions
- tests and equipment currently used in industry.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN808 Manage network testing strategies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan and manage a test regime for evaluation of application software for a telecommunications network.

It applies to individuals with high-level technical skills working as network engineers or senior technical staff within project management roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan test effort and develop test strategy for an application software | 1.1 Critically analyse functionalities of an application software from the system design document and create test strategy for new telecommunications product line<br>1.2 Produce steps for test strategy, including attributes of each step according to enterprise policy<br>1.3 Produce test strategy for evaluating suitability of application software for integration into telecommunications network<br>1.4 Critically analyse test strategy and identify types of risks that |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | would hinder test performance or reality |
| 2. Plan test strategy for regime | 2.1 Produce phases of a test cycle for a test regime according to system design document<br>2.2 Assess a range of tests required to evaluate performance and functionality of application software and determine tests required to suit the test regime<br>2.3 Evaluate features of testing tool and debuggers and select an appropriate tool to test software application and detect faults<br>2.4 Evaluate elements of test plan that cover testing functionality of the application software |
| 3. Design test plan and produce test reviews | 3.1 Determine forecast time, effort and cost for low and medium intensity projects to perform testing<br>3.2 Develop a test case or test scenario with prerequisite states based on requirements to generate expected test results for test plan<br>3.3 Produce test plan for specific phases based on requirements of project specifications for the application software<br>3.4 Produce test reporting associated with particular test phases within test plan<br>3.5 Critically analyse test reports and evaluate impact of test plan on the testing environment<br>3.6 Manage progress of test plan to minimise risks associated with testing and ensure test compliance with test requirements<br>3.7 Report any detected defects to product evaluation personnel, and prepare a strategy to manage defects |
| 4. Manage test traceability | 4.1 Create a traceability matrix to correlate relationship between marketing requirements and detailed requirements of software product to matching parts of design, test plan and test cases<br>4.2 Critically analyse testing metrics produced by test tool to manage tracking of defects and plan process improvements based on the metrics<br>4.3 Produce an evaluation report from traceability matrix to manage defects or failures from the test plan |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 3.5 | • Organises, evaluates and critiques ideas and information from a wide range of complex texts |
| Writing | 1.1, 1.2, 1.3, 3.3, 3.7, 4.3 | • Prepares clear and concise workplace documentation including reports and recommendations incorporating technical language to communicate complex information clearly and effectively |
| Numeracy | 3.1, 3.5, 4.2 | • Uses numerical information to interpret and evaluate different types of technical data, take measurements and determine cost-effective outcomes |
| Navigate the world of work | 1.2 | • Adheres to organisational procedures and protocols |
| Interact with others | 3.7 | • Selects and uses appropriate conventions and protocols when communicating with technical personnel in a range of work contexts |
| Get the work done | 1.1-1.4, 2.1-2.4, 3.1-3.4, 3.6, 4.1, 4.2 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses this to devise strategies<br>• Implements actions according to a predetermined plan, making adjustments as necessary<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• May use formal analytical and lateral thinking techniques resolving software, hardware and logistics problems |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN808 Manage network testing strategies | ICTTEN7225A Manage network testing strategies | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to PCs to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN808 Manage network testing strategies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce steps in developing test strategy
- produce test strategy for evaluating suitability of application software
- design test plan and produce test reviews
- develop a test case or test scenario
- produce a test plan for specific phases
- produce test reporting associated with particular test phases within test plan
- create traceability matrix
- produce an evaluation report from the traceability matrix to manage defects or failures from the test plan.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain applications software features and functionalities
- summarise configuration of software testing tools
- outline creation of a traceability matrix
- provide detailed summary of different elements of test plans and risks associated with implementation
- outline features of testing tools and debuggers
- explain identification of types of risks
- consider legislation, codes of practice and other formal agreements that directly impact testing
- explain how to manage software defects


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- summarise management of test traceability
- outline phases of test cycles
- outline production of test reviews
- consider specific workplace health and safety (WHS) requirements that impact activity in terms of safety of self and the public
- explain relevant steps in developing test strategy
- outline testing procedures and testing cycles for various system applications.
-

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- a site where planning and management of a test regime for evaluation of application software may be conducted
- software tools currently used in industry
- vendor products, specifications, equipment and enterprise policy required for the activity.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN809 Analyse business specifications to produce technical solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply technical solutions in network designs for telecommunications and ICT networking provisioning companies specialising in integrating converging and emerging technologies of ICT networks.

It applies to individuals working as telecommunication officers in service and provision work who carry out design and implementation of technical solutions of information communication technology (ICT) networks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to critically analyse business specifications | 1.1 Research application of a suitable business model for telecommunication service provisioning that meets agreed customer requirements<br>1.2 Obtain business requirements and business specifications to provide data for the model |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Determine business drivers and requirements of key stakeholders and customers, both internal and external<br>1.4 Evaluate business objectives and customer requirements for input into the model |
| 2. Produce technical solutions to meet business imperatives | 2.1 Research tools and templates for analysing business models and provide reports on technical design and specifications<br>2.2 Develop technical solutions for customer in response to drivers and business requirements<br>2.3 Evaluate costs involved in implementing ICT technical solutions for customer<br>2.4 Produce cost benefit analysis to assess viability and optimum timing for deploying the technical solution for maximum return on investment (ROI)<br>2.5 Investigate a range of vendor products to determine most suitable to meet technical requirements and customer needs<br>2.6 Produce a report documenting technical solutions addressing business specifications and recommendations against customer requirements |
| 3. Evaluate impact of technical requirements on the business | 3.1 Review and assess business constraints, opportunities and objectives<br>3.2 Determine technical requirements according to input-output, interface, process flow or quality requirements<br>3.3 Critically analyse hardware, software and network requirements to suit the business plan<br>3.4 Build business platform based on IT/ICT technical solutions<br>3.5 Investigate processes in need of being changed by a business solution<br>3.6 Document impact of technical requirements on the business |
| 4. Document and validate agreed solutions | 4.1 Submit technical requirements and solution overview to management for feedback<br>4.2 Analyse feedback and incorporate change as required<br>4.3 Document changes and distribute final business solution to internal and external stakeholders |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1, 3.1-3.3, 4.2 | • Organises, evaluates and critiques information from a wide range of complex texts |
| Writing | 1.3, 2.4, 2.6, 3.6, 4.2, 4.3 | • Generates complex written texts, demonstrating control over a broad range of writing styles and purposes |
| Oral Communication | 1.3, 4.2 | • Establishes and maintains complex and effective spoken communication in a broad range of contexts<br>• Displays depth of understanding of complex oral texts which include multiple and unstated meanings |
| Numeracy | 2.3, 2.4 | • Uses mathematical formulas and calculations to estimate and plan project costs and evaluate cost-benefits of completed project |
| Interact with others | 4.1, 4.3 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts |
| Get the work done | 1.2, 2.1, 2.2, 2.5, 3.2-3.4 | • Monitors workload in terms of personal and stakeholder goals and outcomes, adjusting or renegotiating priorities and plans as required<br>• Develops plans for complex, high-impact activities with strategic implications that involve a diverse range of stakeholders<br>• Implements actions according to a predetermined plan, making adjustments if necessary and addressing unexpected issues<br>• Considers strategic and operational potential of digital trends to achieve work goals, and enhance work processes and solutions<br>• Uses formal analytical and lateral thinking techniques for identifying issues, generating and evaluating possible solutions<br>• Uses formal decision-making processes as scaffolding for thinking, seeking input, advice and feedback from others as required |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN809 Analyse business specifications to produce technical solutions | ICTTEN7227B Analyse business specifications to produce technical solutions | Updated to meet Standards for Training Packages.<br><br>Recoded and minor changes to element and PC's to meet AQF requirements. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN809 Analyse business specifications to produce technical solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and critically analyse client specifications against accepted industry practices
- produce technical solutions from business specifications
- analyse feedback from client and make adjustments to proposal
- apply design concepts to business solutions
- produce technical reports regarding design of the solution
- make recommendations and offer optimum design solutions
- produce an evaluation document on impact of technical requirements on the business.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline business models and tools
- summarise business processes
- explain client business domain, business function and organisation
- explain compatibility issues and resolution procedures
- explain configuration of internet protocol (IP) networks
- establish customer and business liaison protocols
- summarise desktop applications and operating systems
- provide a detailed explanation of documenting technical specifications
- explain linkage between processes
- summarise security protocols, standards and data encryption
- outline technologies:
  - access networks


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- core networks
- information and communications technology (ICT) network topologies
- mobile cellular networks
- network protocols and operating systems
- optical networks and principles
- radio frequency (RF) networks and principles.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Telecommunications Networks Engineering field of work and include access to:

- client functional requirements
- business specifications
- database software
- simulation software
- organisational guidelines
- network and computer layout
- site design software and hardware
- information on a range of ICT business solutions.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN810 Investigate the application of cloud networks in telecommunications switching

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop strategies to accommodate shortfalls in capacity and functionality for a switching network. It also covers how to develop solutions for network growth using emerging technologies, including cloud computing.

It applies to individuals with excellent technical and strategic management skills working as telecommunications planning engineers and senior technical staff.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Evaluate current physical network infrastructure | 1.1 Analyse scalability, functionality, cost, security and energy consumption of existing physical network infrastructure<br>1.2 Report on shortfalls and risks of existing physical infrastructure in accommodating network growth and increased functionality<br>1.3 Investigate capacity and functionality shortfalls of existing physical infrastructure to highlight limitations of the existing |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | switching network<br>1.4 Document estimated costs and issues associated with meeting capacity and functionality shortfalls using existing physical infrastructure |
| 2. Investigate the application of cloud networks | 2.1 Analyse trends in cloud networks (infrastructure-as-a-service), technologies and multiprotocol label switching (MPLS) architectures against rapid changes in the landscape<br>2.2 Determine applicability of cloud networks (infrastructure-as-a-service) to meet capacity and functionality requirements of the network<br>2.3 Assess risks in using cloud networks to meet capacity and functionality requirements of the network<br>2.4 Evaluate a range of cloud network solutions and justify selection of an optimum network switching solution<br>2.5 Develop solution elements using a series of small project elements<br>2.6 Produce a cloud network alternative solution to emulate the existing core network of a service provider |
| 3. Analyse the impact of the cloud network solution for system integration and across business domains | 3.1 Prepare a plan for organisational change control processes and integration of cloud network solutions within a complete network infrastructure<br>3.2 Prepare a test scenario and produce a test management schedule for the testing process of system elements and interfaces using simulation<br>3.3 Use integration document software to replicate issues exhibited in test environment<br>3.4 Certify cloud network solution compatibility and compliance to requirements using the web-based test management tool (quality centre) to conduct performance evaluation tests<br>3.5 Analyse test reports to evaluate load balancing and network security issues in test environment<br>3.6 Document and resolve conflicts detected in simulation testing |
| 4. Develop a business case for implementation of a cloud network | 4.1 Prepare a cost-benefit analysis of the cloud network solution as a business case to evaluate the return on investment (RoI)<br>4.2 Investigate staging of the solution and timing implementation of project elements as a scenario for real life implementation<br>4.3 Research and report on key features of cloud network |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | implementation in a business case study |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.1, 3.5, 4.3 | • Researches, evaluates and interprets complex technical documentation, such as software and hardware manuals and design specifications |
| Writing | 1.2, 1.4, 3.1, 3.2, 3.6, 4.1, 4.3 | • Prepares clear and concise workplace documentation, including reports and recommendations incorporating technical language, to communicate complex information |
| Numeracy | 1.1, 1.3, 1.4, 3.5, 4.1 | • Uses numerical information to interpret results, evaluate different types of technical data, take measurements and determine cost-effective outcomes for RoI |
| Get the work done | 1.1, 1.3, 1.4, 2.1-2.5, 3.1-3.4, 3.6, 4.2 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal, analytical and lateral thinking techniques to resolve problems or to generate ideas<br>• Actively identifies digital systems, devices and applications with potential to meet current and/or future needs<br>• Uses main features and functions of digital tools to complete work tasks |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN810 Investigate the application of cloud networks in telecommunications switching | ICTTEN8194A Investigate the application of cloud networks in telecommunications switching | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN810 Investigate the application of cloud networks in telecommunications switching

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- evaluate the current physical network infrastructure's capacity and functionality shortfalls
- investigate application of cloud networks and plan architectural design
- develop components of cloud networking solution for meeting capacity and functionality requirements of the network
- assess risks in using cloud networks to meet capacity and functionality requirements of the network
- analyse impact of integration of cloud network solution on network
- prepare a test plan with test scenario and produce a test management schedule
- use integration document and software test management tools to replicate issues exhibited in test environment
- certify cloud network solution compatibility and compliance
- prepare a cost-benefit analysis of the cloud network solution
- develop a business case for implementation of a cloud network.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse components of infrastructure-as-a-service solutions
- summarise existing digital switching technology in service provider's core network
- outline information required to develop architectural solutions
- explain *integration document software*
- explain new cloud network technologies
- provide a detailed summary of cloud networking transmission, transmitter and receiver architecture and their associated infrastructure


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- outline performance and integration requirements
- prepare and/or interpret technical documentation
- outline protocols as used on multiprotocol label switching (MPLS) and infrastructure-as-a-service
- provide a detailed explanation of network components and their functions
- explain specific organisational requirements relating to computer systems
- summarise typical issues and challenges that occur with system changes.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where the application of cloud networks in telecommunications switching may be investigated
- software tools currently used in industry
- vendor products, specifications, equipment and enterprise policy required for the activity.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN811 Evaluate and apply network security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to evaluate security of information communications technology (ICT) networks, using converging switching and transmission technologies in local area networks (LAN) and wide area networks (WAN), broadband networks, internet protocol TV (IPTV) and virtual networks.

It applies to individuals with excellent communication and IT skills working as telecommunications engineers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse operation of the internet | 1.1 Evaluate the interrelationship of IP to open systems interconnect (OSI) seven layer model and the impact on network topologies and network elements<br>1.2 Assess media access control (MAC) and IP addressing, and their application in security<br>1.3 Report on transmission control protocol/internet protocol |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | (TCP/IP) operations and use of transport protocols for transmitting data over the network<br>1.4 Examine various types of routing protocols and the implications on security<br>1.5 Analyse forms of label switching as applied to data packets<br>1.6 Use software to simulate least-cost algorithms |
| 2. Analyse internetwork protocols | 2.1 Compare connection-oriented and connection-less networks in internetworking applications<br>2.2 Research design parameters used in networks<br>2.3 Produce a report on IP multi-casting protocols and systems, including IP frame fields of data frames |
| 3. Research and report internetwork operations | 3.1 Analyse protocol considerations of voice over internet protocol (VoIP)<br>3.2 Research protocols G723.1, G729 and G729A standards and evaluate their application in internetworking<br>3.3 Determine the format of JPEG and GIF files as applied to still pictures<br>3.4 Determine the format of MPEG-2 and H.32x series multimedia protocols for motion pictures<br>3.5 Evaluate features of different of multi-service protocols and of different email system protocols in networking operations<br>3.6 Produce a report on features different web-based protocols used in internetworking operations |
| 4. Analyse features and types of network security | 4.1 Analyse procedures and processes used for security attacks and use of protection mechanisms<br>4.2 Research conventional encryption algorithms and determine possible locations of encryption devices<br>4.3 Produce a report on conventional encryption key distribution problems and how message authentication and verification is achieved<br>4.4 Research one-way hashing and secure hashing functions<br>4.5 Produce a report on digital signature standard (DSS) principles, including public key cryptography algorithms for network security |
| 5. Research features of public key authentication and email network | 5.1 Research public key authentication using Kerberos<br>5.2 Analyse how electronic mail security is achieved using pretty good privacy (PGP) |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| security protocols | 5.3 Research and report on internet protocol security (IPSec)<br>5.4 Produce a report on encapsulating security payload (ESP), including internet key management processes |
| 6. Research features of web, network management and system security | 6.1 Analyse how web threats and attacks occur in an IP network and determine system intruders and threats<br>6.2 Research operation of transaction protocols<br>6.3 Evaluate processes used for selection and protection of system passwords<br>6.4 Evaluate system threats and methods used to counteract the threats<br>6.5 Produce a report on anti-virus protection strategies, including firewall design principles, types and configurations |
| 7. Document evaluation report | 7.1 Present a final report to include research and evaluation of network security management principles and network application in the workplace with enhancement recommendations |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2, 3.2, 4.1, 4.2, 4.4, 5.1, 5.3, 6.2-6.4 | • Researches, evaluates and interprets complex technical documentation, such as technical standards |
| Writing | 1.3, 2.3, 3.6, 4.3, 4.5, 5.3, 5.4, 6.5 | • Prepares clear and concise workplace documentation, including reports and recommendations incorporating technical language, to communicate complex information clearly and effectively |
| Numeracy | 1.6, 4.2, 4.5 | • Uses mathematical subtlety and a clear set of steps to solve public-key encryption and least-cost algorithms |
| Interact with others | 7.1 | • Selects and uses appropriate conventions and protocols to communicate findings to stakeholders in a range of work contexts |
| Get the work done | 1.1-1.6, 2.1, 2.3, 3.1-3.5, 4.1, 4.2, 4.4, | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic |


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| | | |
|---|---|---|
| | 5.1, 5.2, 6.1, 6.3, 6.4 | implications<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal, analytical and lateral thinking techniques to resolve problems or generate ideas<br>• Actively identifies digital systems, devices and applications with potential to meet current and/or future needs<br>• Uses main features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN811 Evaluate and apply network security | ICTTEN8195B Evaluate and apply network security | Updated to meet Standards for Training Packages.<br><br>Minor change to performance criteria for clarity | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN811 Evaluate and apply network security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- investigate and report on protocols used for data transmission over IP networks
- investigate and report on network security in terms of internet protocols, digital signature standard (DSS) principles and asymmetric key cryptography on IP networks
- research and report features of web, network management and system security management in IP networks
- recommend enhancements to security management in IP networks.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain administrative network management systems
- evaluate algorithms used in IP network security
- specify the purpose of cryptography in security systems
- explain encapsulation and encryption in data transmission
- describe examples of enterprise solutions
- explain firewalls
- outline common network topologies
- summarise operations network management systems
- explain routing theory
- explain and give examples of system threats
- outline transaction protocols.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a telecommunications operations site
- a mentor or supervisor appropriately experienced in relevant telecommunications technology and infrastructure
- networked computers and relevant software.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN812 Evaluate and apply digital signal processing to communications system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to analyse, apply and simulate operation of digital signal processing (DSP) to signals in a telecommunications system.

It applies to individuals with excellent information technology (IT) and design skills working as field officers. They develop solutions in modern applications, such as internet protocol TV (IPTV), digital TV, fast broadband and internet applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Apply DSP design criteria to telecommunications system | 1.1 Review DSP criteria applied to signal processing<br>1.2 Perform frequency domain analysis on telecommunications signals<br>1.3 Apply digital processing techniques to DSP baseband communications signals used in digital systems<br>1.4 Generate output of a comb filter in digital filtering application |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | using convolution theorem and autocorrelation |
| 2 Determine linear time invariant (LTI) system properties | 2.1 Simulate telecommunication entities using simulation software functions<br>2.2 Perform calculations to find numerical approximations of the continuous-time convolution process<br>2.3 Simulate echo cancellation by applying simulation software using adaptive DSP algorithms and an inverse filtering method |
| 3 Analyse digital telecommunication signals processing | 3.1 Analyse the result of digitally passing a signal through a first-order recursive discrete-time filter<br>3.2 Determine frequency response of a simple continuous-time system using Fourier transform<br>3.3 Analyse amplitude modulated signals using Fourier transform |
| 4 Analyse time and frequency forms of signals by applying simulation of signal processing | 4.1 Program a simulated software application to represent a comb filter with a signal applied from a telecommunications system<br>4.2 Produce a report analysing simulated output results and relevance of a DSP filter to a telecommunications system |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Researches, evaluates and interprets complex technical documentation |
| Writing | 4.2 | • Prepares clear and concise workplace documentation including reports that incorporate technical language to communicate complex information clearly and effectively |
| Numeracy | 1.2, 1.4, 2.2, 2.3, 3.1-3.3 | • Performs a range of complex, algorithmic calculations and analyses<br>• Analyses and synthesises highly embedded mathematical information in a broad range of tasks and texts |
| Get the work done | 1.1-1.4, 2.1, 2.3, 3.1-3.3, 4.1 | • Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider |


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| | | |
|---|---|---|
| | | implementation issues and contingencies<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses advanced features and functions of digital tools to complete work tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN812 Evaluate and apply digital signal processing to communications system | ICTTEN8196A Evaluate and apply digital signal processing to communications system | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN812 Evaluate and apply digital signal processing to communications system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- apply digital signal processing (DSP) criteria to a telecommunications system
- evaluate linear time invariant (LTI) system properties
- analyse digital and amplitude modulated signals using DSP methods and principles
- demonstrate an awareness of radio frequency issues relevant to DSP processes
- report on finding of analysis and use of DSP in a telecommunications system.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise digital communications systems
- explain Fourier transforms
- explain linear time invariant (LTI)
- explain various modulation methods, amplitude (AM), frequency (FM), phase (PM) and digital formats
- explain organisational policy and procedures for digital signal processing
- outline common non-compliance issues and responses.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a telecommunications operations site


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- digital communication systems
- simulation software
- telecommunications test equipment currently used in industry.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN813 Produce engineering solutions using numerical computations and simulation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to design and evaluate systems and networks to resolve specialised telecommunications network problems.

It applies to individuals who analyse, calculate and solve complex mathematical engineering problems for advanced telecommunication systems requiring numerical simulation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Use advanced engineering mathematics for a range of complex engineering solutions | 1.1 Solve mathematical functions using complex trigonometric ratios<br>1.2 Solve mathematical functions using manipulation of matrices and determinants to perform standard calculations<br>1.3 Solve trigonometric functions using operations on complex numbers |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Solve complex functions using integral and differential calculus<br>1.5 Solve mathematical functions using ordinary differential equations (ODE)<br>1.6 Solve mathematical equations using Laplace transforms<br>1.7 Solve mathematical problems using algorithmic control structures<br>1.8 Use software simulations where possible to produce simulated calculations for a range of engineering solutions<br>1.9 Analyse results from the simulated solution and compare to the derived solutions to adjust any variables in the calculation process |
| 2. Design a simulation control system with queues | 2.1 Design a simple control system using simulation software<br>2.2 Design a queuing system using simulation software<br>2.3 Design a stochastic system using simulation software<br>2.4 Document and present all numerical software simulations for the engineering problems |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Writing | 2.4 | • Prepares clear and concise workplace documentation that incorporates technical language to communicate complex information clearly and effectively |
| Numeracy | 1.1-1.9 | • Uses a range of advanced mathematical skills to perform a variety of complex engineering solutions and interpret complex measurement data |
| Get the work done | 1.8, 2.1-2.3 | • Uses a mix of intuitive and formal processes to identify key information and issues, evaluate alternative strategies, anticipate consequences and consider implementation issues and contingencies<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses main features and functions of digital tools to |


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| | | |
|---|---|---|
| | | complete work tasks |

# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN813 Produce engineering solutions using numerical computations and simulation | ICTTEN8197A Produce engineering solutions using numerical computations and simulation | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN813 Produce engineering solutions using numerical computations and simulation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- solve a range of complex mathematical functions related to telecommunications engineering
- use software systems to produce simulations of mathematical solutions
- analyse results of software simulations
- design telecommunications systems using software simulations
- document and present software solutions for engineering problems.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse and manipulate functions using symbolic and numerical software, including operations of entering and manipulating polynomials in suitable software and then substitution of values and graphing
- analyse and manipulate matrices and determinants, numerically with and without symbolic and numerical software
- design and debug programs using algorithmic control structures and output results to the screen, a graph and a file
- analyse and manipulate complex numbers numerically and with symbolic software
- determine and manipulate equations using advanced calculus operations of differentiation and integration numerically and with symbolic software
- determine and manipulate equations of the type called ordinary differential equations (ODE) met in telecommunications engineering applications numerically and with symbolic software


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- determine and manipulate Laplace transforms met in telecommunications engineering applications numerically and with symbolic software
- design a simulation control system and simulate queues using software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- networked computers
- simulation software
- relevant documentation
- a range of industry scenarios or workplace examples.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN814 Manage development and application of testing artefacts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to plan and manage a test regime by developing testing artefacts to evaluate application software for a telecommunications network.

It applies to individuals working as network engineers or senior technical staff within project management roles, and includes technologies in mobile phones, wireless modems, set top boxes, media centres, web applications and content servers using application software to provide a telecommunications service.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan the test effort and develop test strategy for software testing | 1.1 Critically analyse functionalities of an application software from the system design document and create a test strategy for a new telecommunications product line<br>1.2 Produce steps in developing test strategy and attributes of each |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | step, according to enterprise policy<br>1.3 Produce a test strategy to evaluate suitability of application software for integration into the telecommunications network<br>1.4 Assess a range of tests required to evaluate performance and functionality of application software and determine tests required to suit the test regime<br>1.5 Evaluate features of testing tool and debuggers, and select an appropriate tool to test the software application and detect faults<br>1.6 Produce a test plan based on requirements of the project specifications, and identify testing artefacts required for model-based software testing |
| 2. Plan the development of testing artefacts | 2.1 Develop software testing strategies for uncovering evidence of defects in software systems as part of the quality assurance process<br>2.2 Produce a test dependency model of the relationship between the test regime and test levels in software testing for referencing and validation<br>2.3 Critically analyse software testing requirements to determine domain testing and application testing artefacts requirements to validate the software product |
| 3. Develop and manage testing artefacts | 3.1 Create reusable domain artefacts to detect early defects in domain testing<br>3.2 Modify domain test artefacts by binding variability to create application test artefacts to detect defects in product line applications<br>3.3 Produce test reporting associated with test cycle phases within the test plan<br>3.4 Critically analyse test reports and evaluate the impact of the test plan with testing artefacts on the testing environment<br>3.5 Manage progress of the test plan to minimise risks associated with testing and ensure the test complies with test requirements<br>3.6 Report detected defects to product evaluation personnel and prepare a strategy to manage defects<br>3.7 Critically analyse testing metrics produced by the test tool to manage tracking of defects, and use metrics to plan process improvements<br>3.8 Produce an evaluation report from the traceability matrix to manage defects or failures from the test plan |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.6, 2.3, 3.3, 3.4 | • Organises, evaluates and critiques ideas and information from a wide range of complex texts |
| Writing | 1.3, 1.6, 3.3, 3.6, 3.8 | • Prepares clear and concise workplace documentation, including reports and recommendations incorporating technical language, to communicate complex information |
| Numeracy | 3.4, 3.7 | • Uses numerical information to interpret and evaluate different types of technical data and take measurements |
| Interact with others | 3.6 | • Selects and uses appropriate conventions and protocols when communicating with technical personnel in a range of work contexts |
| Get the work done | 1.1-1.5, 2.1-2.3, 3.1, 3.5 | • Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context for complex, high-impact activities with strategic implications<br>• Demonstrates a sophisticated understanding of principles, concepts, language and practices associated with the digital world and uses this to devise strategies<br>• Implements actions according to a predetermined plan, making adjustments if necessary<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal, analytical and lateral thinking techniques for resolving software, hardware and logistics problems |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN814 Manage development and application of testing artefacts | ICTTEN7226A Manage development and application of testing artefacts | Updated to meet Standards for Training Packages. | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN814 Manage development and application of testing artefacts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- produce steps in developing test strategy
- produce a test strategy to evaluate suitability of application software
- develop software testing strategies for uncovering evidence of defects in software systems
- create reusable domain artefacts to detect early defects in domain testing
- produce test reporting associated with phases of a test cycle within the test plan
- produce an evaluation report from the traceability matrix.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline applications' software features and functionalities
- specify the configuration of software testing tools
- define *software artefact* and explain the process for testing artefacts
- summarise creation of the traceability matrix
- summarise steps in developing the test strategy and specify various tests that may be applied
- outline domain and application testing
- explain essential elements of test plans
- evaluate features of testing tools and debuggers
- explain the identification of types of risks
- outline the management of:
  - software defects
  - test traceability


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- explain phases of test cycles
- summarise production of test reviews
- outline steps in developing a test strategy
- explain testing procedures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- a site where testing artefacts can be developed and applied
- software tools currently used in industry
- vendor products, specifications, equipment and enterprise policy required for the activity.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN815 Manage project requirements and process implementations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to analyse forecast data, develop specifications and resource requirements, and plan implementation of the process solution for products and services.

It applies to individuals with excellent planning and organising skills, working as network engineering staff or senior technical officers within project management roles, who have authority to direct activities of implementation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage forecast service demand requirements | 1.1 Develop a project plan to review forecasting data and generate planning forecasts using forecasting tools<br>1.2 Critically analyse and review forecasts according to enterprise policy and produce forecast figures considering new developments in the area and technological changes where appropriate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Manage network development growth requirements | 2.1 Critically analyse market intelligence on customer demand and demand data to plan for potential network traffic quantity and flow<br>2.2 Assess overall planning parameters, including approved business plan prior to commencing the planning process<br>2.3 Critically analyse gathered information and produce a project plan with specifications to meet network growth |
| 3. Manage project resource requirements | 3.1 Assess resource requirements to manage the project from the scoping phase through to project completion<br>3.2 Critically analyse outcomes of the project deliverables to determine effectiveness of the project process |
| 4. Develop process solutions | 4.1 Produce requirements for process solutions for delivery of product and services to customers using forecasting demand data<br>4.2 Prepare a plan for the organisational change control process and integration of new solutions within a complete network infrastructure<br>4.3 Produce a test management schedule for the testing process of the product solution<br>4.4 Develop solution specifications using industry process according to design requirements<br>4.5 Develop software and hardware resource profiling and select a suitable vendor for negotiations<br>4.6 Complete configuration management and provide complex input design requirements |
| 5. Critically analyse test results for process solutions | 5.1 Use design document and integration document software to replicate issues exhibited in test environment<br>5.2 Certify software solution compatibility and compliance with requirements using web-based test management tool to conduct performance evaluation tests<br>5.3 Critically analyse test reports to evaluate compatibility and security issues in a test environment<br>5.4 Resolve complex issues in interface to isolate defects |
| 6. Manage process implementation | 6.1 Plan and prepare evidence for customer acceptance and certification<br>6.2 Plan and manage transition to operation activities required for transition to operation of integrated IP solution<br>6.3 Prepare an installation failures procedure to make changes while |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | maintaining service levels<br>6.4 Manage the change implementation plan to maintain system stability |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1-2.3, 3.2, 4.4, 5.3 | • Organises, evaluates and critiques ideas and information from a wide range of complex texts |
| Writing | 1.1, 1.2, 2.3, 4.1-4.4, 6.1, 6.3 | • Demonstrates sophisticated writing skills by selecting appropriate conventions and stylistic devices to express precise meaning |
| Numeracy | 1.2, 2.1, 3.1, 4.1, 5.3 | • Analyses and synthesises highly embedded mathematical information in statistical data to apply forecasting techniques and assess planning parameters |
| Get the work done | 1.1, 2.2, 3.1, 4.5, 4.6, 5.1, 5.2, 5.4, 6.1, 6.2, 6.4 | • Operates from a broad conceptual plan, developing operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Demonstrates a sophisticated understanding of the potential of new technology including principles, concepts, language and practices associated with the digital world<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal, analytical and lateral thinking techniques to manage unexpected changes in demand requirements<br>• Monitors outcomes of decisions, considering results from a range of perspectives, and identifying key concepts and principles and their impact on customers and enterprise |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTTEN815 Manage project requirements and process implementations | ICTTEN7228A Manage project requirements and process implementations | Updated to meet Standards for Training Packages. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN815 Manage project requirements and process implementations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- manage forecast service demand requirements
- manage network development growth requirements
- manage project resource requirements
- develop process solutions following critical analysis of test results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- evaluate principles of managing change and implications for managing a project
- summarise customer applications and usage levels
- outline forecasting tools and techniques, and specify data that contributes to forecasting
- explore various industry processes that impact project management strategy
- outline integration of new solutions
- explain market intelligence and its value to forecasting and project assessment
- explore various types of data used to evaluate demand
- summarise performance evaluation
- provide a detailed summary of planning procedures
- describe the limitations of compatibility on the integration of telecommunications solutions
- evaluate products and services embedded in a project
- define project management and evaluate a project management plan
- explain test management.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- forecast data and tools involved in planning
- a range of software and hardware currently used in industry
- relevant regulations and specifications that impact forecasting activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTTEN816 Scope project requirements and process solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to develop scope management strategies and plans, in line with business requirements and organisational strategies, for the delivery of products and services.

It applies to individuals with excellent planning and problem-solving skills, working as network engineering staff or senior technical officers within project management roles. They work with new and emerging technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – Telecommunications Networks Engineering

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Conduct project scope definition activities | 1.1 Develop and confirm procedures for project authorisation with an appropriate authority for commitment of resources and effort<br>1.2 Establish agreement of desired project outcomes with relevant stakeholders<br>1.3 Develop scope management plan to determine scoping requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Define and plan scoping project requirements and process solutions | 2.1 Critically analyse needs in consultation with client and relevant stakeholders to verify project scope<br>2.2 Prepare project specifications with project objectives, deliverables, constraints, exclusions, assumptions and principal work activities for delivery of products and services<br>2.3 Determine and agree measurable project outcomes and benefits to enable quantified evaluation of program performance<br>2.4 Develop and communicate scope definition, scope management strategies and plans to stakeholders, and seek agreement<br>2.5 Align program scope to business requirements and organisational strategy |
| 3. Manage scoping process | 3.1 Conduct regular program reviews to measure project performance and ensure stated program, business and strategic objectives are met<br>3.2 Establish and maintain the change management system to form the basis of ongoing scope management<br>3.3 Conduct reviews of scope changes and take action to ensure project and program objectives are achieved or modified<br>3.4 Measure project outcomes against defined program scope and aligned strategic objectives<br>3.5 Communicate results of program outcomes to appropriate authority<br>3.6 Manage the impact of scope changes within established time, cost and quality constraints according to change control procedures and to meet project objectives<br>3.7 Review the project planning process and document recommendations for improvements to future projects |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 3.4 | • Organises, evaluates and interprets a range of complex documentation, including project plans |


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| | | |
|---|---|---|
| Writing | 1.3, 2.2, 2.4, 3.7 | • Prepares clear and concise workplace documentation, including project briefs and reports incorporating technical language, to communicate complex information clearly and effectively |
| Oral Communication | 1.1, 1.2, 2.1, 2.3, 2.4 | • Uses highly developed listening, observational and questioning skills to understand others' perspectives, and clarify and explore meaning<br>• Clearly articulates requirements using language appropriate to audience and environment |
| Numeracy | 3.4, 3.6 | • Analyses and synthesises mathematical information to assess project parameters, including budget requirements and limitations |
| Interact with others | 1.2, 2.1, 3.5 | • Selects and uses appropriate conventions and protocols when communicating with stakeholders in a range of work contexts<br>• Collaborates with others to achieve joint outcomes, playing an active role in facilitating agreement |
| Get the work done | 2.2, 2.3, 2.5, 3.1-3.3, 3.6, 3.7 | • Operates from a broad conceptual plan, developing operational detail in stages, regularly reviewing priorities and performance during implementation, and identifying and addressing issues<br>• Monitors outcomes of process and decisions made, considering results from a range of perspectives and identifying key concepts and principles that may be adaptable to future situations<br>• Takes responsibility for high-impact decisions in complex situations involving many variables and constraints<br>• Uses formal, analytical and lateral thinking techniques to resolve problems such as unexpected variations to requirements and control proposed changes in scope<br>• Monitors outcomes of decisions, considering results from a range of perspectives and identifying key concepts and principles and their impact on customers and enterprise |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTTEN816 Scope project requirements | ICTTEN7230A Scope project requirements | Updated to meet Standards for | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| and process solutions | and process solutions | Training Packages. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTTEN816 Scope project requirements and process solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- prepare project specifications with project objectives
- develop scope management plan
- develop scope management strategies
- conduct regular program reviews
- measure project outcomes
- manage the impact of scope changes within established budget and timeline.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- examine a range of products, services and solutions as they apply to various project outcomes
- explore various stakeholders and relevant levels of authorisation required for the duration of a project
- explain project life-cycle and the significance of scope management
- outline scope management plans, methodologies, techniques and tools
- summarise typical challenges and issues encountered in project scope management and options for addressing them
- identify and explore various project performance indicators and how project performance can be measured
- evaluate various vendor products and solutions.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications networks engineering field of work and include access to:

- sites on which projects may be conducted
- forecast data and tools involved in planning
- a range of software and hardware currently used in industry
- relevant regulations and specifications that impact forecasting activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB201 Use social media tools for collaboration and engagement

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish a social networking presence, using social media tools and applications. It includes the requirement to review, compare, and use different types of social networking tools and applications.

It applies to information and communications technology (ICT) personnel who need to develop a social networking web presence for a small or large office environment, using social media tools and applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Describe the different types of social media tools and applications | 1.1 Explain the characteristics of the term ‘social media’<br>1.2 Identify different types of social-media tools and applications<br>1.3 Illustrate some of the issues associated with the use of social media tools and applications |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Compare different types of social media tools and applications | 2.1 Select one social media type to review<br>2.2 Review the most popular tools, and applications, within that social media type<br>2.3 Itemise the benefits across a range of the most popular tools and applications<br>2.4 Select the most appropriate social media tool or application |
| 3. Set up and use, popular social media tools and applications | 3.1 Identify the social media tools and applications available for possible implementation<br>3.2 Initiate the preferred social media tools, and applications, for use<br>3.3 Establish the social media interface, using text and file content<br>3.4 Initiate social networking interaction<br>3.5 Test and evaluate tools, and applications, for ease of use<br>3.6 Present the findings |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.2 | • Extract the relevant information from technical and organisational documents |
| Writing | 1.1, 2.2, 2.3, 3.3, 3.4, 3.6 | • Develop the content in a manner that supports and conveys information, using the appropriate structures and specialised language |
| Navigate the world of work | 1.3 | • Understands legal and ethical responsibilities, regarding the use of social media tools |
| Get the work done | 2.1, 2.2, 2.4, 3.1, 3.2, 3.5, 3.6 | • Makes routine decisions and implements standard procedures for routine tasks<br>• Understands the purposes, specific functions, and the key features of common digital systems and tools, and operates them effectively to complete routine tasks |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB201 Use social media tools for collaboration and engagement | ICAWEB201A Use social media tools for collaboration and engagement | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB201 Use social media tools for collaboration and engagement

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify different types of social media tools and applications, and the issues associated with their use
- access the internet, set up a social networking presence and upload and link a wide variety of files
- use and evaluate social media tools and applications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list basic technical terminology in relation to social networking, social media applications, and tools
- outline basic methods of uploading images, text files, portable document format (PDF) files, audio files, video files, and link the associated files
- state the features, and functions, of social media applications
- list import and export software functions
- explain how to link documents
- explain the process of tagging, in order to facilitate collaborative folksonomy
- list social media applications and procedures, for connecting to social networking sites
- identify and describe, input and output devices
- describe, and use, really simple syndication (RSS) feeds to connect a social network.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a personal computer (PC) and printer
- the internet
- social-media tools and applications
- online instructional documents.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB301 Create a simple markup language document

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, create and save a basic markup language document, using a text editor.

It applies to individuals who work in an assistant capacity to create web pages.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review the requirements | 1.1 Review the requirements of the document<br>1.2 Select the appropriate markup language, based on organisational standards<br>1.3 Review the document structure |
| 2. Create the document structure | 2.1 Create and assign, the basic elements of the document<br>2.2 Mark-up sections of the document to depict the structure |
| 3. Validate the documents | 3.1 Validate the markup of the language document, against the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements<br>3.2 Validate the markup of the language document, in different browsers |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3 | • Extracts the relevant information from technical and organisational documents |
| Writing | 2.1, 2.2, 3.1, 3.2 | • Develops content in a manner that supports and conveys information, using the appropriate structures and specialised language |
| Navigate the world of work | 1.2 | • Understands own role and responsibilities, and follows organisational standards |
| Get the work done | 1.1, 1.2, 1.3,<br>2.1, 2.2, 3.1, 3.2 | • Makes basic decisions and implements standard procedures for routine tasks<br>• Understands the purposes, specific functions, and the key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB301 Create a simple markup language | ICAWEB301A Create a simple markup language document | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| document | | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB301 Create a simple markup language document

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review document requirements, and select the appropriate language
- create and save a markup language document
- validate the document
- use a markup language, without the automated generation of code.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe, markup languages and their associated standards
- list the features and limitations of a range of available browsers
- explain web accessibility.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- the organisational style guide or policy
- the document specification
- a text editor
- a range of browsers
- the internet, to validate the markup.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB302 Build simple websites using commercial programs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use web authoring tools to create, modify and test, simple web pages and websites.

It applies to individuals with responsibility for creating and maintaining simple websites.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the authoring requirements | 1.1 Select the preferred web authoring tool, according to the client requirements<br>1.2 Set preferences for the web authoring tool, including the site file transfer protocol client |
| 2. Create and save the files | 2.1 Create files, and save them, in the correct location or directory<br>2.2 Navigate the web authoring tool environment, or workspace<br>2.3 Access and use, a range of features in the web authoring tool |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.4 Maintain a suitable directory structure for the site<br>2.5 Save in the appropriate directory structure<br>2.6 Upload files to the appropriate folder on the server |
| 3. Add content to the web pages | 3.1 Insert and format text content, according to the client requirements<br>3.2 Insert images, data tables, and simple forms<br>3.3 Access the markup language and make basic modifications to the code |
| 4. Create simple navigation | 4.1 Create a site map in order to plan navigation<br>4.2 Create links between pages to reflect content structure, using both text and images |
| 5. Test the website | 5.1 Test the elements of the website's content across a number of different browsers, and browser versions, to ensure the consistency of presentation and performance<br>5.2 Test that the website meets the client requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.1 | • Evaluates a range of technical specifications and other information, to determine the most appropriate solutions to meet client needs and requirements |
| Writing | 2.1, 3.1, 3.3, 4.1 | • Uses software, and the appropriate technical language, to create files |
| Navigate the world of work | 3.1 | • Understands own role and responsibility to comply with specific client requirements |
| Interact with others | 1.1, 3.1, 5.2 | • Initiates a connection with others through verbal, or nonverbal communication, responding as appropriate |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, | • Takes responsibility for planning, sequencing and prioritising tasks within own workload, for efficiency and |


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| | | |
|---|---|---|
| | 3.3, 4.1, 4.2, 5.1, 5.2 | effective outcomes<br>• Makes some critical and non-critical decisions within mostly familiar situations, to develop and test, functional websites that meet client needs<br>• Understands the purposes, specific functions, and the key features of common digital systems and tools, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB302 Build simple websites using commercial programs | ICAWEB302A Build simple websites using commercial programs | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB302 Build simple websites using commercial programs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select, and use, a web authoring tool to create web pages in accordance with client requirements
- insert the text and image elements into a web page
- modify the existing markup
- test web page content for consistency
- upload the files to the server.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the Australian Computer Society Code of Ethics
- list the workp health and safety (WHS) requirements relevant to the information and communications technology (ICT) industry
- identify the web authoring tools used for web page design
- provide an overview of website publishing and markup languages
- explain sustainability concepts, including energy and resource conservation
- describe the function of a file transfer protocol (FTP)
- list common browsers used for accessing the web.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- computer hardware and software
- web authoring tools
- the web servers
- the website
- storage media
- FTP client software
- the server security password, and access procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB303 Produce digital images for the web

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the performance outcomes, skills and knowledge required to produce, and manipulate, images suitable for use in website development.

This unit applies to individuals with responsibility for creating graphics for a web environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the client requirements | 1.1 Access and interpret the client brief to determine client needs<br>1.2 Analyse client needs with regard to image content, quality and size |
| 2. Source the images | 2.1 Research the appropriate sources of images, to meet a range of needs<br>2.2 Source the images appropriate to meet the needs, taking into consideration copyright restrictions |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 3. Manipulate the images | 3.1 Select the appropriate industry-standard, image-editing software for the purpose<br>3.2 Create backups of the assets to be used<br>3.3 Use features of the image-editing software, to create a range of effects appropriate to client needs and web application<br>3.4 Edit, resize, and slice images for use in web applications, as required to meet client needs |
| 4. Save the images | 4.1 Save the images, maintaining their individual effects<br>4.2 Save the images in formats appropriate for use in web applications, and to client needs<br>4.3 Save the images in the appropriate directory structure |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 3.1 | • Investigates and evaluates technical information, software and organisation documents, to determine work requirements, appropriate web applications and solutions |
| Writing | 3.2-3.4, 4.1-4.3 | • Uses specific software and technical language to create, format, review, save, and access web-based images |
| Navigate the world of work | 1.1, 2.1 | • Understands own role and responsibility, in order to comply with specific client and legislative requirements |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 3.1-3.4, 4.1-4.3 | • Takes responsibility for planning, sequencing, and prioritising tasks within own workload, for efficiency and effective outcomes<br>• Makes some critical and non-critical decisions within mostly familiar situations, to develop and test functional websites that meet client needs<br>• Understands the purposes, specific functions, and the key features of common digital systems and tools, and operates them effectively to complete routine tasks |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB303 Produce digital images for the web | ICAWEB303A Produce digital images for the web | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB303 Produce digital images for the web

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse the client's needs
- undertake research to source the images
- manipulate and produce images for use in website development, to meet the requirements of the brief
- save the images in appropriate format.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe, the industry standards and the copyright legislation relevant to digital images
- explain sustainability concepts appropriate to the ICT industry
- describe digital image formats and their application
- identify and summarise, common digital image editing software.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- image manipulation software, hardware and storage devices currently used in industry
- the client brief


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- the sources of the images, and opportunities to review digital images prepared for a website
- the organisational policy and procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB401 Design a website to meet technical requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design a website to specifications, within a particular technical and human interface environment.

This unit applies to individuals who are responsible for analysis, documentation and design, including identifying the technical and human computer interface requirements that drive design.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define the technical environment | 1.1 Identify the business requirements<br>1.2 Identify the appropriate standards required to develop the site<br>1.3 Identify the appropriate hardware and software required |
| 2. Define the human computer interface | 2.1 Conduct a user analysis, in order to determine a user profile and user needs<br>2.2 Determine the user content, and requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Determine the appropriate design principles for the site<br>2.4 Identify the appropriate operating system |
| 3. Determine the site hierarchy | 3.1 Identify the hierarchy of pages<br>3.2 Ensure that the content is logical and accessible to the user<br>3.3 Ensure that navigation between pages is consistent and clear |
| 4. Integrate the design components | 4.1 Apply the appropriate information hierarchy to the site design<br>4.2 Ensure that the design principles are appropriate to the business, and to the user<br>4.3 Ensure that the process flow is developed in a logical and simple manner<br>4.4 Test the site against user needs<br>4.5 Complete and document the design structure |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.4, 3.1-3.3 | • Interprets, analyses, and syntheses, technical and organisational information to inform decision-making, to construct and validate solutions, and to produce responses to pre-determined requirements and work tasks |
| Writing | 2.2, 3.2, 3.3, 4.5 | • Develops content in a manner that supports and conveys information, using the appropriate structures, templates, software, and specialised language<br>• Produces a logically sequenced text to convey exact procedural requirements and specific, and concise, instructions/meaning |
| Navigate the world of work | 1.2 | • Takes personal responsibility for adherence to the standards of industry bodies, where related to own work context |
| Interact with others | 2.1, 2.2, 4.2 | • Selects the appropriate communication protocols and conventions, when conferring with clients to elicit information, and to determine specific needs and |


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| | | |
|---|---|---|
| | | requirements |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 4.4 | • Takes responsibility for planning, sequencing, and prioritising tasks within own workload, for efficiency and effective outcomes<br>• Uses analytical processes to make routine and some complex decisions, to develop logical structures within the website information and operation that meet client needs<br>• Understands the purposes, specific functions and , key features of common digital systems, tools and software, and operates them effectively to complete routine tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB401 Design a website to meet technical requirements | ICAWEB401A Design a website to meet technical requirements | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB401 Design a website to meet technical requirements

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify and select, the appropriate tools and procedures required to develop a website
- conduct a user analysis to identify the website, or design structure, required
- define the user interface
- determine the site hierarchy
- test the website, to ensure that it meets the standards required by the user.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the basic aspects of information architecture
- describe the business process design
- outline copyright and intellectual property requirements
- provide an overview of the customer, and business, liaison
- detail e-business sites and corporate strategy
- describe the implications of technology connectivity
- explain the procedures for documenting technical specifications
- discuss the relevant standards relating to website design
- compare website design methods, and standard website structures
- recognise and define, common operating systems
- recognise and operate, common computer hardware.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to the:

- analysis software
- customer relationship model
- e-business website
- requirements documentation
- site server
- site server software
- web servers
- relevant standards, and copyright information.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB402 Confirm accessibility of websites for people with special needs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure that a website is accessible to users with auditory, visual, mobility, and cognitive impairments, and those people who use assistive technology.

It applies to individuals who use analysis and technical skills, to build and test websites.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the accessibility standards | 1.1 Research and identify, specific user groups with particular accessibility requirements<br>1.2 Identify general legislated and industry accessibility standards, and requirements, to understand the wider context of accessibility<br>1.3 Identify web development standards, and prioritise application<br>1.4 Consolidate specific and general standards, and requirements, into an accessibility checklist for application to website related |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | work |
| 2. Test for website accessibility | 2.1 Select and prepare, the appropriate automatic testing tools and software<br>2.2 Run the automatic testing tools and make document changes, based on the results<br>2.3 Ensure that the text equivalent for every non-text element is present in the website, where feasible<br>2.4 Verify that information conveyed with colour is also available without colour<br>2.5 Identify any changes in the natural language of a document text<br>2.6 Check and ensure, that the document can be read without style sheets<br>2.7 Check and ensure that the priorities identified in the analysis of web development standards are met and completed<br>2.8 Test the site with different user groups, to ensure that the site transforms successfully and maintains accessibility |
| 3. Test the pages | 3.1 Check and ensure that the pages are not dependent on colour, and can operate in a monochrome environment<br>3.2 Check and ensure that the pages are logical and accessible, in a text-only environment<br>3.3 Verify that the pages operate on a text-to-speech browser<br>3.4 Ensure that the accessibility of the website is signed off by the appropriate person, as meeting the web-development standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.8 | • Identifies, analyses, and evaluates complex texts to determine work requirements |
| Writing | 1.4, 2.1, 2.2, 2.4-2.8, 3.1-3.4 | • Uses specific software and technical language to format, review, and amend web-based documents and diagrams<br>• Generates checklists that include accessibility |


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| | | |
|---|---|---|
| | | standards criteria and other specific requirements |
| Oral Communication | 2.8 | • Participates in verbal exchanges with stakeholders, using listening and questioning to elicit information and to share viewpoints |
| Navigate the world of work | 1.2, 1.3 | • Takes personal responsibility for adherence to the regulatory and legislative standards related to own work context |
| Interact with others | 3.4 | • Selects and uses the appropriate conventions and protocols, to communicate with others in a specific work context |
| Get the work done | 1.4, 2.1, 2.2, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4 | • Accepts responsibility and the ownership of tasks, and makes decisions on completion parameters, and the need for consultation and coordination with others<br>• Plans, sequences and prioritises tasks, and own workload, for efficiency and effective outcomes<br>• Understands the purposes, specific functions and the key features of common digital systems, tools and software, and operates them effectively to complete a series of diagnostic tests, and tasks, that meet prioritised web development standards for accessibility |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB402 Confirm accessibility of websites for people with special needs | ICAWEB402A Confirm accessibility of websites for people with special needs | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB402 Confirm accessibility of websites for people with special needs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify accessibility standards
- test a website for accessibility using a range of tools and tests
- check website documents and other web components for accessibility issues
- test web pages for accessibility.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe the relevant legislation, regulations and codes of practice, relating to access and equity
- describe the computing and programming standards that apply to access and equity
- describe the access and equity issues of web page design, in relation to:
  - customer and business liaison approaches, and processes
  - electronic commerce modelling language
  - government, advocacy group, and user group liaison
- discuss the application of privacy principles to website development, user access and user usage
- describe technical performance measurement principles
- describe the Web Accessibility Initiative (WAI)
- explain the importance of website accessibility, security, and equity legislation
- compare website design methods and standard website structures
- explain website security
- explain workload metrics


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- list World Wide Web Consortium (W3C) standards.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a live website
- the requirements documentation
- the customer-relationship model
- automatic accessibility measuring tools
- organisational requirements and relevant standards.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB403 Transfer content to a website using commercial packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to transfer content, from a remote location to a web server, using a range of commercial information and communications technology (ICT) products. The objective is the successful upload of new, or revised, information on a website.

It applies to individuals who are required to update websites.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Configure the file transfer protocol client | 1.1 Review and select the file transfer protocol (FTP) client, based on features and functions<br>1.2 Ensure that the file transfer protocol client is suitable for the technical environment<br>1.3 Enter client details, including the user identity (ID), password and the host name or ID, into profile fields to create a permanent |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | profile<br>1.4 Choose settings such as auto-detect, save profile, and password, depending on organisational security and privacy policy, and the organisational guidelines<br>1.5 Test and verify, the configuration by connecting to the web-hosting server |
| 2. Plan and prepare for the data transfer | 2.1 Prepare the data content, and back it up on the local computer or server<br>2.2 Identify data as compressed, or uncompressed, with the tools available on the server to manage uploaded data<br>2.3 Ensure that the files are in an appropriate form for recognition and interaction by the operating system<br>2.4 Ensure that the receiving directory structure is applicable for the data to be uploaded |
| 3. Establish the connection to server | 3.1 Log on to remote server using administrative, guest or anonymous accounts<br>3.2 Proceed through the security layers, based on organisational guidelines<br>3.3 Initiate the file transfer protocol client program and locate the destination directory |
| 4. Transfer the data to a remote server | 4.1 Select files to be transferred and choose the mode, American Standard Code for Information Interchange (ASCII), or binary<br>4.2 Run the antivirus software on the downloaded files<br>4.3 Move, rename, copy, and delete files on the server as necessary, and as permissions allow<br>4.4 Store and order files, according to requirements and file extensions<br>4.5 Conduct appropriate steps for downloaded files, such as translation, decompression, or de-archival of the files for use<br>4.6 Confirm the data transfer and content functionality, and close the connection |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 1.5, 2.1-2.4, 3.2, 4.1-4.6 | • Accesses and evaluates technical information, standards, and data, to ensure alignment between work requirements, implementation protocols and specified outcomes |
| Writing | 1.3-1.5, 2.1-2.4, 3.1-3.3, 4.1, 4.3-4.5 | • Uses specific standards, software and technical language to create, update, enter and verify data and information, according to work requirements, implementation protocols, and specified outcomes |
| Navigate the world of work | 1.4, 3.2, 4.3, 4.4 | • Takes personal responsibility for adherence to legislative requirements and the organisational policies and guidelines, related to own work context |
| Get the work done | 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 | • Plans, sequences and prioritises tasks and own workload, for efficiency and effective outcomes<br>• Understands the purposes, specific functions and the key features of common digital systems, tools and software, and operates them effectively, to complete a series of sequential tasks required to prepare, and transfer, data successfully to a website |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB403 Transfer content to a website using commercial packages | ICAWEB403 A Transfer content to a website using commercial packages | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB403 Transfer content to a website using commercial packages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- configure a file transfer protocol (FTP) client
- prepare the content to be transferred
- connect to the server
- transfer the content.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the process of transferring content to a website including:
  - the FTP server and the client software
  - internet protocols
  - security issues
  - server access security procedures
  - server operating systems
  - website server architecture (e.g. Linux, Windows, Unix)
- outline the range of organisational policies, and procedures, that impact on web site development
- identify and describe the legislation, regulations, and codes of practice as they relate to web design, including:
  - codes of ethics
  - privacy
  - copyright
  - intellectual property.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to the:

- web servers
- e-business website
- FTP client software
- server security password, and access procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB404 Maintain website performance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure that a website maintains performance levels during peak traffic times, and full use access.

It applies to individuals who use planning and analytical skills to maintain and improve website performance.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Benchmark website performance | 1.1 Review client performance expectations, from the specifications and business requirements<br>1.2 Test the administration and maintenance requirements, against the specifications and business requirements<br>1.3 Establish performance benchmarks, from the specifications and business requirements<br>1.4 Ensure that performance benchmarks are tested |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Record measured performance benchmarks against the specifications |
| 2. Track website performance | 2.1 Measure actual website performance against performance benchmarks in key areas and record the outcomes<br>2.2 Establish policies and procedures for maintaining the stability of actions and processes related to the website<br>2.3 Identify faults, or suggest improvements, to the website<br>2.4 Implement improvements according to the business requirements and organisational policy, and procedures<br>2.5 Establish automatic fault reporting procedures and processes<br>2.6 Monitor and maintain website security measures<br>2.7 Implement administration and maintenance schedules<br>2.8 Establish preventative maintenance and administration indicators, and ensure that an alert system is enabled<br>2.9 Track user activities and make changes to policies or procedures, depending on the findings |
| 3. Tune performance | 3.1 Compare actual website performance against benchmarks over an appropriate period, and make changes based on inconsistencies<br>3.2 Record performance inconsistencies, and incorporate learning, into revised policy and procedures<br>3.3 Use diagnostic and software tools, to identify and correct, any website faults<br>3.4 Plan and action, preventative maintenance on a regular basis to ensure the continuous and consistent performance of the website<br>3.5 Complete and record the fault, correction and maintenance reports |
| 4. Initiate and monitor performance improvement | 4.1 Establish a mechanism for capturing client initiatives, to assist in identifying maintenance, or administration, or performance problems<br>4.2 Review the security tools, and procedures and conduct improvements, where necessary<br>4.3 Document and implement the maintenance schedules<br>4.4 Review the maintenance and administration documentation, according to policy and procedures, in order to identify areas for performance improvement<br>4.5 Update the website on a regular basis, including information, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | links, multimedia links, and back-end software<br>4.6 Provide a timely and appropriate response to the client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2-1.3, 2.1-2.9, 3.1 | • Examines, constructs, organises and validates relationships between discrete, and interrelated, data and information |
| Writing | 1.5, 2.2, 2.2, 2.9, 3.1, 3.2, 3.4, 3.5, 4.1-4.6 | • Designs and develops, the procedural documents that convey critical performance information to end users<br>• Modifies documents using on-going analysis of performance data and feedback<br>• Prepares a well structure and cohesive document, that presents analysis of evidence and actions utilising the appropriate format, technical language, correct spelling and grammar |
| Numeracy | 1.3, 1.5, 2.1, 3.1, 3.2, 3.5, 4.1, 4.4 | • Assigns a numerical value to performance requirements, and uses measurement data to inform decisions, track performance, and establish actions to be taken in relation to the required work task |
| Navigate the world of work | 2.2, 2.4, 2.9, 3.2, 4.4 | • Takes personal responsibility for following, explicit and implicit, organisational policies relevant to own work<br>• Implements revisions to existing policies and procedures, or initiates new policies, relating to website use and performance for others |
| Interact with others | 4.6 | • Selects and uses appropriate conventions and protocols, to communicate with others in a specific work context |
| Get the work done | 1.1, 1.3, 1.4, 2.1, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.1, 3.3, 3.4, 4.1, 4.2, 4.3, 4.5 | • Determines job specifications and requirements, and performs clearly defined tasks in a logical, systematic sequence<br>• Uses analytical thinking and diagnostic processes<br>• Understands the purposes, specific functions, and key features of common digital systems, tools and software, and operates them effectively |


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# Unit Mapping Information

| Code and title<br>current version | Code and title<br>previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB404 Maintain website performance | ICAWEB404A Maintain website performance | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB404 Maintain website performance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review and establish, website performance benchmarks
- ensure that the website meets specifications
- identify and rectify faults, where the performance is not met
- implement scheduled and non-scheduled maintenance
- effectively monitor, and tune, website performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the process of maintaining a website performance including:
  - security issues
  - website server architecture (e.g. Linux, Windows, Unix)
  - website security protocols
  - workload (web traffic) metrics
- outline the business process design methodologies
- identify and describe legislation, regulations, and codes of practice as they relate to web performance, including:
  - codes of ethics
  - privacy
  - copyright
  - intellectual property.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- web servers and websites
- the technical requirements
- web traffic diagnostic tools, including timing tools to gauge website response times
- the appropriate learning and assessment support, when required
- the relevant organisational policies and procedures.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB405 Monitor traffic and compile website traffic reports

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to monitor website traffic and to compile traffic reports as specified.

It applies to individuals who are required to maintain websites.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Select web traffic monitoring tools | 1.1 Identify and analyse the available site-analysis software, according to organisational requirements, and the website architecture<br>1.2 Choose and install the most suitable site-analysis software or internet service provider, according to the vendor requirements<br>1.3 Identify the required report options, according to organisational requirements and the website architecture<br>1.4 Develop a traffic monitoring program |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Monitor web traffic | 2.1 Specify the required traffic reports, according to information requirements<br>2.2 Generate the required traffic reports<br>2.3 Analyse the reports, to identify improvements to the server and to site performance<br>2.4 Apply forecasting methodologies to predict traffic peaks |
| 3. Make recommendations for improvements | 3.1 Recommend any changes in hardware and software<br>3.2 Implement the changes, as directed<br>3.3 Continue the traffic monitoring program, as required |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 2.3 | • Identify, analyse and evaluate, a range of organisational documents and technical information |
| Writing | 1.4, 2.1-2.3, 3.1 | • Constructs a data collection tool, incorporating the timelines and information to be collected<br>• Prepares a technical report, using the appropriate punctuation, language and layout, in order to convey the results and recommendations of investigations |
| Numeracy | 1.3, 1.4, 2.3, 2.4 | • Evaluates and presents, numerical and statistical data, to inform decisions and actions |
| Navigate the world of work | 1.1, 1.3, 2.1 | • Takes personal responsibility for following explicit and implicit organisational requirements, relevant to own work |
| Interact with others | 3.1, 3.2 | • Selects and uses the appropriate conventions and protocols, when communicating in a range of familiar work contexts |
| Get the work done | 1.1, 1.2, 1.4, 2.2, 2.4, 3.1, 3.2, 3.3 | • Determines job specifications and requirements, and performs clearly defined tasks in a logical, systematic sequence<br>• Uses analytical thinking and diagnostic processes, to monitor the web server and site performance, and to |


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| | | |
|---|---|---|
| | | suggest improvements<br>• Understands the purposes, specific functions, and key features of common digital systems, tools and software, and operates them effectively to monitor website traffic to meet requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB405 Monitor traffic and compile website traffic reports | ICAWEB405A Monitor traffic and compile website traffic reports | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB405 Monitor traffic and compile website traffic reports

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- select and install the site-analysis software, or an internet service provider (ISP)
- monitor website traffic
- generate and analyse traffic reports
- recommend and implement changes, as required.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the problems and challenges that arise with an organisation web site related to:
  - data queues and bottlenecks
  - website security
  - website copyright and intellectual property requirements
- identify and describe legislation, regulations, and the codes of practice as they relate to monitoring website traffic, including:
  - codes of ethics
  - privacy
- describe the process of monitoring website traffic, including:
  - functionality of network device drivers
  - functionality of network operating systems
  - queuing systems
  - website architecture
  - workload metrics


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  - server design and functionality
- outline the features and functionality of commercially available:
  - log file analysis software
  - traffic tracking software
  - network device drivers
  - network operating systems
  - queuing systems.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- analysis software
- the e-business website
- a web server

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB406 Create website testing procedures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and implement procedures, which measure the performance of a website, and compare these procedures to the initial design specifications.

It applies to individuals who may use significant judgement in planning, design, evaluation, technical or leadership and communications functions in frontline technical support roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Document and define the performance criteria | 1.1 Review the performance specifications and determine the benchmark criteria<br>1.2 Validate and document the performance functions<br>1.3 Select the measurement methodology, and test it on the website<br>1.4 Validate each performance function separately<br>1.5 Record and document the metric tools, using the appropriate |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | methodology<br>1.6 Prepare the performance benchmarks, and seek agreement on the criteria with the client |
| 2. Validate the performance measures | 2.1 Develop inspection and test plans, in order to validate performance measures throughout the performance cycle<br>2.2 Test the performance functions, and record the results, according to technical documentation standards<br>2.3 Compare the results of performance function testing to benchmark<br>2.4 Redesign functions that do not meet the appropriate performance benchmarks<br>2.5 Re-implement functions that have been redesigned during performance testing<br>2.6 Document the benchmarks and obtain sign-off |
| 3. Obtain sign-off | 3.1 Validate and document, performance standards and benchmarks<br>3.2 Submit the methodology and function testing document, and results, to the client for approval<br>3.3 Review client comments and make changes, as appropriate<br>3.4 Obtain sign-off for the website testing procedure |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.6, 2.1-2.5, 3.1, 3.3 | • Evaluates, integrates, and confirms the authenticity of the data and information, to reach an understanding of the contextual and procedural nature of business solutions |
| Writing | 1.2, 1.5, 1.6, 2.1, 2.2, 2.6, 3.1-3.3, 3.4 | • Develops and documents benchmark standards, performance plans, measurements, and detailed results, and recommendations for client approval<br>• Uses the appropriate formats and writing principles, in accordance with technical standards and organisational |


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| | | |
|---|---|---|
| | | conventions |
| Oral Communication | 1.6, 2.6, 3.2-3.4 | • Participates in complex verbal exchanges with clients that require active listening and responses to questions, to elicit relevant and specific information, and to obtain feedback, and consensus |
| Numeracy | 1.1-1.6, 2.1-2.6, 3.1 | • Measures and evaluates performance, against established baseline numerical values |
| Navigate the world of work | 2.2, 2.6 | • Takes personal responsibility for following explicit, and implicit, organisational requirements relevant to own work |
| Interact with others | 1.6, 3.2, 3.4 | • Selects and uses, the appropriate conventions and protocols, when communicating in a range of familiar work contexts |
| Get the work done | 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3 | • Uses analytical thinking, systematic decision- making and diagnostic processes, to determine, implement and evaluate, testing and validation processes<br>• Understands the purposes, specific functions and the key features of common digital systems, tools and software, and operates them effectively, to perform testing procedures to meet requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB406 Create website testing procedures | ICAWEB406A Create website testing procedures | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB406 Create website testing procedures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the critical functions to be tested
- develop the appropriate metrics for each function, and assign the benchmarked performance standards
- test each performance function, and compare against the appropriate benchmarks
- validate the performance of the site against technical requirements
- document the results, to establish performance benchmarks for subsequent development of the site.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe the legislation, regulations, codes of practice, and standards as they relate to web testing, including:
  - codes of ethics
  - privacy
  - copyright
  - intellectual property
  - naming
  - documentation
- describe the client business domain, including client organisation structure and business functionality
- identify current industry-accepted hardware and software products


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- outline the desktop applications and operating systems, as required by organisational guidelines
- describe queuing systems, workload metrics, and user request classes
- describe the key features, and use of, a standard generalised markup language (SGML) and its associated standards
- explain standard web-testing procedures and optimisation tools
- outline website design methodologies and standard website structures.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- analysis software
- the e-business website
- industry standards, and organisational guidelines
- site design and technical requirements documentation
- site-development software and tools.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB407 Conduct operational acceptance tests of websites

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to provide high-level assurance, that websites can be effectively and efficiently provisioned and deployed live, in a systematic manner.

It applies to individuals employed as web designers and web developers who are involved in testing the effectiveness of websites.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare the test | 1.1 Establish and document, the testing framework and schedule<br>1.2 Determine the processes and functions to be tested, and assign the quantitative and qualitative performance benchmarks to each process and function<br>1.3 Benchmark and document the page templates, style guides and expected traffic loads |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Determine and document the test methodology<br>1.5 Assemble and brief, the testing panel on the conduct of the test<br>1.6 Develop user and installation manuals, according to the target audience's understanding and needs |
| 2. Test individual pages | 2.1 Test the pages, against style guides and templates<br>2.2 Test the pages, for consistency in structure and content<br>2.3 Apply the automatic testing software<br>2.4 Document page gross statistics of confirmed results of tests |
| 3. Test page relationships against the business requirements | 3.1 Test the installation, and the examples listed in instruction manual<br>3.2 Test page navigability using a variety of browsers<br>3.3 Test the ease of use and functionality against the requirements<br>3.4 Test software interface points, against the business and technical requirements<br>3.5 Test site security and privacy against the business requirements<br>3.6 Test the response time against the business requirements<br>3.7 Conduct load simulation testing, using single and multiple independent browsers, or automated load testing tools |
| 4. Apply and document further tests | 4.1 Test the website's ability to handle concurrent access<br>4.2 Test conformance to the applicable privacy, accessibility, and acceptable usage policy standards<br>4.3 Apply the automatic testing software<br>4.4 Collect, collate and document the results from the sample user, and data from the automated test |
| 5. Evaluate the test results | 5.1 Consolidate and compare the results to the benchmarks<br>5.2 Identify results that fail to meet the benchmarks, and conduct a site remedial iteration<br>5.3 Record and document the test results as the site performance baseline, against which further development or updating can be measured<br>5.4 Provide evaluation feedback to the appropriate person<br>5.5 Ensure that the appropriate person signs off on the site, prior to the 'go live' date |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.1-2.3, 3.1-3.7, 4.1, 4.2, 5.1, 5.2 | • Examines, constructs, organises and validates relationships, between both discrete and interrelated data and information |
| Writing | 1.6, 2.4, 4.4, 5.1-5.5 | • Produces a concise formal document that conveys technical information and procedures, utilising the appropriate format, technical language, correct spelling and grammar<br>• Uses specific software and technical language to create, format, review, save and access documents |
| Oral Communication | 1.5, 5.4, 5.5 | • Conveys information by participating in verbal exchanges including listening, questioning and discussing, data and information with a group of people in order to elicit an understanding of, and obtain a consistency of approach to, work requirements<br>• Uses clear and detailed verbal language in order to convey explicit information, and to elicit approval for proposed solutions and activities |
| Numeracy | 1.2, 2.4, 5.1, 5.3 | • Determines analyses and presents, numerical and statistical, data to inform the decisions and actions to be taken to achieve pre-determined outcomes |
| Navigate the world of work | 3.4, 3.5, 3.6, 4.2, | • Ensures compliance of the product against business requirements and against the protocols |
| Get the work done | 1.1-1.6, 2.1-2.4, 3.1-3.7, 4.1-4.4, 5.1-5.5 | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Develops options, resolves issues, designs and implements tests, to ascertain the functionality of solutions prior to full implementation<br>• Utilises a combination of lateral and analytical thinking, to design, and refine, ideas to suit needs, resources and constraints<br>• Uses a range of digitally-based technologies and the software packages and hardware required for creating, and refining, websites |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB407 Conduct operational acceptance tests of websites | ICAWEB407A Conduct operational acceptance tests of websites | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB407 Conduct operational acceptance tests of websites

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare an operational acceptance test that measures the independent and integrated structural content, and the technical components, of the site
- apply automatic testing software and collect, collate and document the results or tests
- evaluate and provide feedback on the test results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the client business domain
- describe the structure, function and business organisation of the client, including the business-process design
- identify the organisational policies and procedures that cover routine work processes, and the use of:
  - web optimising tools
  - web monitoring tools
  - web testing procedures
- describe technical performance measurement
- explain website accessibility and equity principles
- outline website structures, design and testing methodologies, and standards
- describe common website security issues and the methods employed to mitigate risk
- list and describe, common testing software and the metrics used
- identify and describe, the application of common website testing software.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the website technologies field of work, and include access to:

- special purpose tools, equipment and materials including:
  - web servers
  - the e-business website
  - the site server
- relevant industry software packages, including site server software and analysis software
- the organisational requirements documentation, customer relationship model, website manuals and instructions.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB408 Ensure basic website security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to provide basic website server, and protocol security appropriate to the level required by an organisation.

It applies to individuals employed as web maintenance staff who are required to ensure that a website meets basic security requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine business security requirements | 1.1 Identify the level of security required based on the business, and the commercial intent of the website<br>1.2 Identify whether password protection is needed for the site, or part of the site<br>1.3 Decide on minimum or maximum password protection solutions, based on the business requirements |
| 2. Ensure web server | 2.1 Ensure that the web server password is obscure and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| security | non-traceable<br>2.2 Install and maintain an effective intrusion detection system, according to business requirements<br>2.3 Ensure that user accounts have only the required permissions on the server<br>2.4 Ensure that interpreters' programs, that run common gateway interfaces (CGIs), are not stored in the CGI-bin directory<br>2.5 Ensure that web forms check data before passing it to the server |
| 3. Ensure protocol security | 3.1 Protect the fixed internet connection, and the internet protocol (IP) address<br>3.2 Protect shared network resources from intrusion, according to business requirements<br>3.3 Ensure that personal computer (PC) protocols and preferences follow security protocols<br>3.4 Disable control protocol, or internet protocol (TCP/IP), bindings for file and printer sharing<br>3.5 Ensure that network basic input/output system (NetBIOS) over TCP/IP is disabled |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.5, 3.1-3.5 | • Identify and evaluate technical information to produce solutions to business requirements<br>• Identify critical information and cross check for accuracy |
| Writing | 2.2, 3.1-3.5 | • Writes and edits, computer code and technical data, ensuring the correct syntax and accuracy |
| Oral Communication | 1.1, 1.2 | • Listens and asks questions to elicit information |
| Navigate the | 1.3 | • Ensures the compliance of the product against the business requirements and protocols |


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| | | |
|---|---|---|
| world of work | | |
| Get the work done | 1.1-1.3, 2.1-2.5, 3.1-3.5 | • Plans approach to work based on the analysis of business needs and requirements<br>• Sequences, schedules and prioritises own work activities<br>• Resolves issues and implements tests, to ascertain the functionality of solutions prior to full implementation<br>• Utilises a combination of lateral and analytical thinking, to evaluate and validate reliability, and the efficacy of the website<br>• Uses a range of digitally-based technologies, and the software packages and hardware, required for interrogating vendor databases and websites |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB408 Ensure basic website security | ICAWEB408A Ensure basic website security | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB408 Ensure basic website security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the level of security required by the business for the website
- implement password protection solutions, for the website and the server
- install and maintain, an intrusion detection system
- implement protocol security.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the client business domain, including the client organisation structure and business functionality
- identify current industry-accepted hardware and software products
- outline desktop applications and operating systems, as required
- describe firewall functionality
- describe hypertext transfer protocol (HTTP) and disk and executing monitor tools (daemons)
- outline the range of security protocols, including:
  - secure socket layer (SSL)
  - point-to-point network tunnelling protocol (PPTP)
  - layer 2 tunnelling protocol (L2TP)
- define security patches
- explain specific purpose security computers, acting as bastion hosts
- explain web-server operating systems.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the website technologies field of work, and include access to:

- special purpose tools, equipment, materials
- industry software packages
- a basic website and web servers
- the organisational requirements documentation
- website manuals and instructions.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB409 Develop cascading style sheets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0 |

## Application

This unit describes the skills and knowledge required to develop cascading style sheets (CSS) that are attached to a markup language document, in order to externally define, and control, styles to enhance and achieve commonality between web documents.

It applies to individuals who are required to layout and ensure consistency of appearance between web pages.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Format, style and lay out the elements on a web page | 1.1 Obtain user requirements<br>1.2 Style the elements of a web page using CSS<br>1.3 Apply CSS to multiple pages in a website<br>1.4 Position the document elements using CSS |
| 2. Test and validate the web pages | 2.1 Test the website in various browsers |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Validate CSS against industry standards<br>2.3 Report the test results to the appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.2 | • Identifies, interprets and uses information from technical and business documents to complete a work task |
| Writing | 1.1-1.4, 2.3 | • Uses specific software and technical language to create, format, review, save and access web- based documents, diagrams and images |
| Oral Communication | 1.1, 2.3 | • Identifies work outcomes through open-ended questioning, active listening, paraphrasing and summarising<br>• Uses clear and detailed verbal language in order to convey explicit information |
| Numeracy | 1.2-1.4 | • Extracts and evaluates the mathematical information embedded in a range of tasks and texts<br>• Takes measurements and performs calculations for website layout |
| Navigate the world of work | 1.1, 2.2 | • Completes work to user requirements and industry standards |
| Get the work done | 1.1-1.4, 2.1-2.3 | • Sequences and schedules complex activities within the specified timeframe, monitors implementation, and manages relevant communication<br>• Analyses documentation in order to apply and obtain desired results, and to resolve problems<br>• Utilises a combination of lateral and analytical thinking, to design and refine solutions that are adaptable to different contexts<br>• Uses a range of digitally-based technologies, and the software packages and hardware required |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB409 Develop cascading style sheets | ICAWEB409A Develop cascading style sheets | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB409 Develop cascading style sheets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0 |

## Performance Evidence

Evidence of the ability to:

- develop a website style and format, using cascading style sheets (CSS), to user requirements
- lay out page elements, using CSS
- test web pages in a variety of browsers
- validate the CSS against industry standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss standard web and CSS design principles
- identify and describe the application of the following to CSS:
  - hypertext transfer protocol (HTTP)
  - hypertext mark-up language (HTML)
  - extensible hypertext mark-up language (XHTML)
  - industry standards for web design
- recognise a range of internet browsers.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the website technologies field of work and, include access to:


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- special purpose tools, equipment and materials
- industry software packages
- a computer
- a variety of web browsers
- the organisational requirements documentation including:
  - an aesthetic presentation brief
  - website manuals
  - HTML documents
- the internet, for access to the World Wide Web Consortium (W3C).

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB410 Apply web authoring tool to convert client data for websites

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0 |

## Application

This unit describes the skills and knowledge required to use web development software to create website content. The unit is designed to use a web-authoring tool to convert text and images to the appropriate web protocols.

It applies to individuals employed as web developers who are responsible for developing websites using client data.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Create the files | 1.1 Create files and save, in the correct location and directory<br>1.2 Insert and format text content, according to the business requirements<br>1.3 Insert and optimise images, as required |
| 2. Create the formatting | 2.1 Create basic external cascading style sheets (CSS) |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| templates | 2.2 Define styles for the required tags, according to the business requirements<br>2.3 Link CSS to the files, and display formatting |
| 3. Define library items | 3.1 Identify items that recur on several pages, and include in the library<br>3.2 Format selected items, according to CSS definition<br>3.3 Check the tags of selected items<br>3.4 Create and clearly name, the selected library items<br>3.5 Update the items contained in the library, according to the business requirements |
| 4. Develop the templates | 4.1 Create and save file as template, and link with CSS<br>4.2 Format the template and create, and name, editable regions<br>4.3 Place the generic image icons in a page, as required by the business image<br>4.4 Save and modify the templates |
| 5. Identify the authoring requirements | 5.1 Select the preferred web authoring tool, according to the business requirements<br>5.2 Set the preferences for the web-authoring tool, including the site file transfer protocol (FTP) client<br>5.3 Customise and navigate, the web author tool environment or workspace, to meet individual requirements<br>5.4 Select buttons and tools, both opened and closed, to access the full range of features<br>5.5 Define and name the site and root folder |
| 6. Create simple forms | 6.1 Add form elements to the page<br>6.2 Set the form element properties for each form element<br>6.3 Insert additional fields, as required for the processing form<br>6.4 Identify the availability, and location, of the common gateway interface (CGI) script<br>6.5 Connect the form to a script in a server CGI bin<br>6.6 Test the form to ensure that there are no errors |
| 7. Create simple navigation | 7.1 Create the site map in order to plan navigation<br>7.2 Create the links between pages to reflect the content structure, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | using both text and images<br>7.3 Check the links in multiple browsers for errors<br>7.4 Check the website content across a number of different browsers, and browser versions, to ensure consistency of presentation, performance and accessibility |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 3.1, 3.2, 3.5, 5.1-5.5 | • Identifies, and interprets, information from technical and business documentation to complete a work tasks, according to the business requirements and technical specifications |
| Writing | 1.1-1.3, 2.1-2.3, 3.2, 3.4, 3.5, 4.1-4.4, 5.2-5.5, 6.1-6.5, 7.1-7.3 | • Uses specific software and technical language to create, format, review, save and access web based documents, templates, diagrams and images<br>• Electronically enters data and information that meet business requirements, and adheres to the technical requirements and specifications |
| Navigate the world of work | 1.1, 2.2, 3.5, 5.1 | • Completes tasks in accordance with the specified business requirements |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.5, 4.1-4.4, 5.1-5.5, 6.1-6.6, 7.1-7.4 | • Prioritises and monitors own work<br>• Solves operational problems, as they arise<br>• Analyses the business requirements and interprets the technical aspects of implementation<br>• Designs simple forms<br>• Operates software applications, selects the appropriate authoring tools to meet the required specifications, and writes and maintains, the hypertext markup language (HTML) |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB410 Apply web authoring tool to convert client data for websites | ICAWEB410A Apply web authoring tool to convert client data for websites | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB410 Apply web authoring tool to convert client data for websites

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop web content, using authoring tools to meet the business requirements
- create cascading style sheets (CSS)
- define library items
- create templates
- use authoring tools to create cross-browser web documents
- create forms
- create navigation tools.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and describe, the client business domain
- identify and describe the legislation, regulations, codes of practice and standards, as they relate to websites
- outline the accessibility guidelines regarding web-authoring tools
- explain the standard generalised markup language (SGML), and describe the associated standards
- describe standard web and CSS design principles and structures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the website technologies field of work, and include access to:

- special purpose tools, equipment and materials
- industry software packages
- the website, where content may be developed
- site authoring software and tools
- the business expectations brief
- the appropriate standards, and current legislation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB411 Produce basic client-side script for dynamic web pages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0 |

## Application

This unit describes the skills and knowledge required to develop interactive and engaging websites, using a range of features from various, appropriate languages.

It applies to individuals working in web development environments who are required to produce client-side scripts as a common means of creating interactive websites. These scripts offer an effective simple means of enabling websites to provide greater interaction with clients.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the requirements for web documents | 1.1 Determine the necessary dynamic functionality of the web document<br>1.2 Determine the appropriate language to achieve that functionality<br>1.3 Determine the web document requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design and produce web documents | 2.1 Design the web document, and embedded scripts to achieve the required functionality<br>2.2 Write a simple hypertext markup language (HTML), considering accessibility<br>2.3 Write embedded scripts |
| 3. Test the scripts and debug | 3.1 Test the web document against the required functionality, and reiterate until correct<br>3.2 Complete the documentation and submit it to the appropriate person for their approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3 | • Recognises and interprets textual information in various information and communications technology (ICT) languages, in order to determine the dynamic functionality of the web document |
| Writing | 1.1, 1.3, 2.1, 2.2, 2.3, 3.2 | • Develops material for a specific audience, using detailed ICT language, to convey explicit information |
| Oral Communication | 1.1, 1.3 | • Articulates clearly, using the specific language suitable to technical, operational and business audiences, to convey requirements and listening, and questioning, techniques to confirm understanding |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.2 | • Plans approach to work based on internet protocols, and the analysis of business needs and requirements<br>• Sequences, schedules and prioritises own work activities<br>• Resolves issues, including design and functionality conflicts, debugging and handling errors, and implements tests to ascertain the functionality of solutions, prior to full implementation<br>• Utilises a combination of lateral and analytical thinking, and practice, to design and validate the reliability, and efficacy of web documents |


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| | | |
|---|---|---|
| | | • Uses a range of digitally-based technologies, software packages, and hardware to view the active elements or objects across different platforms, and to design, and produce, web documents |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB411 Produce basic client-side script for dynamic web pages | ICAWEB411A Produce basic client-side script for dynamic web pages | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB411 Produce basic client-side script for dynamic web pages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the dynamic functionality and requirements of web documents
- select the appropriate language
- design web documents with embedded script
- produce dynamic web page documents
- test and debug, the web document functionality
- document and gain client approval.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss the basic principles behind open platform programming
- describe client-side scripting and its application to dynamic web page design, including:
  - events and event handlers
  - internet operation related to servers and clients
  - internet protocols
  - standard generalised markup language (SGML)
  - associated standards
- identify and outline, security restrictions on servers
- describe the difference between server-side and client-side scripting
- describe the standards associated with programming documentation.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the website technologies field of work, and include access to:

- special purpose tools
- equipment and materials
- industry software packages
- the web server
- the client requirements
- the security policy
- functionality and scope requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB412 Produce interactive web animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create interactive animated enhancements, to advertisements and web pages.

It applies to individuals working as web designers who generate and apply advertisements for website clients, create animations to enhance a web page message and produce fully animated websites.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse project requirements | 1.1 Determine the necessary dynamic functionality of the animation to be included inside the web document<br>1.2 Determine the appropriate language to achieve that functionality<br>1.3 Determine web document requirements<br>1.4 Research and evaluate, current requirements for online |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | advertising with major agencies and websites |
| 2. Design the web animations | 2.1 Design the web document and animations, to enhance the page<br>2.2 Design the advertisements to promote the web page, within a website<br>2.3 Design the advertisements to promote the web page, on externally hosted, paid advertising<br>2.4 Design advertisements that meet current website advertising specifications for size, number or loops, sound and buttons<br>2.5 Design and create gif replacements for animation, as per major advertising agency requirements<br>2.6 Design the animations for a website that will add to the overall professionalism, or entertainment value, of a website |
| 3. Produce the animations | 3.1 Produce the web animations, for web pages<br>3.2 Produce the web animations, for external advertising<br>3.3 Produce the web animations, for internal website advertising<br>3.4 Produce the web animations, for a website that will enhance the overall professionalism, or entertainment value, of the website<br>3.5 Test and debug, scripts against the required functionality and reiterate until correct |
| 4. Publish animations | 4.1 Publish the animations in an acceptable web format<br>4.2 Incorporate the web animations into a hypertext markup language (HTML) page<br>4.3 Complete the documentation and submit it to the appropriate person for their approval |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.4, 2.1, 2.2, 2.3, 3.4 | • Identifies and explores, connections between ideas and methodologies, and uses research techniques to source the knowledge required to resolve technical difficulties, and the extend understanding of the job's |


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| | | |
|---|---|---|
| | | requirements |
| Reading | 1.4, 2.4, 2.5 | • Analyses and compares industry-specific and related text, to determine all advertising, client and technical requirements |
| Writing | 1.1 | • Prepares, and produces, dynamic material for a specific audience using clear and detailed language in order to convey explicit information, requirements and recommendations |
| Oral Communication | 1.1 | • Clearly articulates requirements, using the language appropriate to the audience and environment, and participates in a verbal exchange of ideas/solutions |
| Numeracy | 2.4 | • Interprets numerical information, and applies basic mathematical calculations, to recurring technical features |
| Get the work done | 1.1-1.4, 2.1-2.6, 3.1-3.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, present information, and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB412 Produce interactive web animation | ICAWEB412A Produce interactive web animation | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB412 Produce interactive web animation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the requirements for the animation
- design the interactive animations requirements
- create animations for web pages and advertising applications
- publish the animations to the web environment.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline web animation programming concepts, including:
  - acceptable formats for importing assets
  - component libraries
  - cross-browser issues
  - importing and exporting libraries
  - inserting the published work to a hypertext markup language (HTML), or extensible hypertext markup language (XHTML) page
  - internet-animation player statistics
  - masking
  - movements and automated movements
  - publishing the finished work to an acceptable web format
  - shape animation and manipulation
  - symbols
  - text manipulation


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  - transparencies
- explain programming control structures, object-oriented programming, including:
  - buttons
  - scripting to go to uniform resource locators (URLs)
  - scripting to jump to different parts of the animation
  - scripting using the programming language
- summarise internet technology, including selecting the right scripting type to reach a maximum determined audience
- outline the principles of the analysis of web parameters, and the design of suitable animations, for advertisements and website enhancements
- explain the methods and attributes of animation, and how it enhances the website to entice buyers.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a development environment
- the internet
- browsers
- the appropriate web design software.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB413 Optimise search engines

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create and implement, good internet-marketing practices using search engine optimisation (SEO) techniques, including introducing web pages to search engines, and monitoring search engine performance.

It applies to individuals who make recommendations and monitor keyword enhancements, search engine marketing (SEM) and social network marketing (SNM).

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse internet-marketing requirements | 1.1 Determine the main business of the website, and the keywords currently used on each page<br>1.2 Create a keyword suggestion list for the website, using online tools<br>1.3 Analyse the best keywords for macro and sub-keywords<br>1.4 Create recommendations for improved optimisation for image search optimisation (ISO), keyword density on web pages, and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | keywords used in headings and heading levels meta-elements and page tiles<br>1.5 Analyse the pages, and recommend sections for content<br>1.6 Analyse the current website position in organic listings<br>1.7 Analyse the current success of online advertising<br>1.8 Analyse current traffic analysis reports, using online tools and the web-hosting statistics<br>1.9 Analyse the current success of the social network marketing content |
| 2. Prepare an internet marketing strategy report | 2.1 Use detail from the analysis to prepare a recommendation report for the client, covering the differences between search engine optimisation, search engine marketing, and social network marketing<br>2.2 Make recommendations about search engines and social network media to the target, based on the volume of users<br>2.3 Make recommendations regarding a timeframe for expecting improved search engine results<br>2.4 Explain the search terms<br>2.5 Make recommendations for the implementation of search engine optimisation, and search engine marketing, including a summary of recommendations on the methods to improve search engine rankings, both organic and pay per click (PPC) |
| 3. Implement the SEO strategy | 3.1 Implement the macro and sub-keywords on pages<br>3.2 Implement keywords<br>3.3 Implement the sections for content, and back links from quality websites<br>3.4 Create online profiles for updating search engine data<br>3.5 Introduce the website to major search engines |
| 4. Review the SEO | 4.1 Determine current website position in organic listings<br>4.2 Review the current success of online advertising with regard to the website’s position<br>4.3 Evaluate current traffic analysis reports, and compare these with previous results |
| 5. Prepare a client SEO result report | 5.1 Analyse website statistics, for site reports and listings<br>5.2 Compare current statistics with previous site reports and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | listings<br>5.3 Summarise the findings, and make further recommendations |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 4.3, 5.1, 5.2 | • Critically analyses complex documentation from a variety of sources, and consolidates the information relating to specific criteria, to determine requirements |
| Writing | 1.2, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 3.2, 3.4, 3.5, 5.1, 5.3 | • Accurately records and completes organisational documents, and correspondence, using clear language and the correct spelling, grammar and terminology |
| Oral Communication | 1.1, 2.2, 2.3, 2.4, 2.5, 5.3 | • Uses collaborative and inclusive techniques, including active listening and questioning, and the reading of verbal and non-verbal signals, to convey and clarify information, and to confirm understanding |
| Numeracy | 2.2, 2.3, 5.1, 5.2 | • Interprets statistical information, and compares information, to measure usage and prepare client reports<br>• Uses mathematical calculations to estimate timeframes for improved search engine results |
| Get the work done | 1.1-1.9, 3.1-3.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Addresses less predictable problems and initiates standard procedures in response to these problems, applying problem-solving processes to determine a solution<br>• Contributes to continuous improvement of current work, by applying basic principles of analytical and lateral thinking<br>• Uses familiar digital technologies and systems to access information, search and enter data and code, present information and communicate with others |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB413 Optimise search engines | ICAWEB413A Optimise search engines | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB413 Optimise search engines

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse internet marketing requirements
- prepare and implement, an internet search engine marketing strategy
- monitor search engine performance
- make recommendations for:
  - keyword enhancements
  - search engine marketing (SEM)
  - social network marketing (SNM).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe internet marketing methods and best practices, including:
  - search terms
  - keywords
  - keyword density
  - search engine ranking
  - search engine methods of assessing search engine optimisation (SEO)
  - back links
  - social network media in the context of SEO
- analyse and interpret, the internet marketing strategy of a website.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in website technologies field of work, and include access to the:

- website files
- file transfer protocol (FTP)
- internet
- profiling tools
- social network marketing logins.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB414 Design simple web page layouts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to scope web page requirements, and to create and implement designs.

It applies to individuals working as web designers and web developers, who apply a wide range of knowledge and skills for basic web development.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify main layout sections from design specification | 1.1 Identify the required sections of the web page<br>1.2 Create the web page structure |
| 2. Layout the web page to match design specification | 2.1 Position document elements<br>2.2 Style web page elements to match the design specifications |
| 3. Test and validate the | 3.1 Test the website in various browsers |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| layout | 3.2 Validate the web pages against industry standards |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.1 | • Identifies and explores, the connections between ideas and methodologies to extend the understanding of requirements |
| Reading | 2.2, 3.2 | • Recognises and interprets textual information, in order to determine and adhere to, requirements |
| Writing | 1.1 | • Develops clear and well-organised material for a specific audience, using precise language to convey explicit information, and requirements |
| Oral Communication | 1.1 | • Clearly articulates requirements, using the language appropriate to the audience and environment, and participates in a verbal exchange of ideas/solutions |
| Numeracy | 1.2, 2.1 | • Takes measurements, and performs calculations for the web page layout |
| Navigate the world of work | 3.2 | • Identifies and acts on issues that contravene the relevant industry standards |
| Get the work done | 1.2, 2.1, 2.2, 3.1, 3.2 | • Takes responsibility for planning, sequencing, and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Addresses less predictable problems, and initiates standard procedures in response to these problems, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, search and enter data, and code, present information and communicate with others, cognisant of data security and safety |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB414 Design simple web page layouts | ICAWEB414A Design simple web page layouts | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB414 Design simple web page layouts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a website according to design specifications
- lay out page elements
- test the web pages in a variety of browsers
- validate the web pages, against industry standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise standard web and web scripting design principles
- define and explain the application of the following for website development:
  - cascading style sheets (CSS)
  - the hypertext transfer protocol (HTTP)
  - a markup language, such as hypertext markup language (HTML), or extensible hypertext markup language (XHTML)
  - World Wide Web Consortium (W3C) standards.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a computer


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- an aesthetic presentation brief
- a variety of browsers
- the internet, to validate against the W3C.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB415 Produce server-side script for dynamic web pages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to produce server-side scripts for dynamic web pages, using a range of relevant features from different but appropriate languages.

It applies to individuals working as web designers who apply a wide range of knowledge and skills across different information and communications technology (ICT) environments to support small to medium enterprises (SMEs) that require broader, rather than more specialised, ICT support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the requirements for web documents requiring server-side dynamic interaction | 1.1 Determine the necessary dynamic functionality of the web document<br>1.2 Determine the appropriate language, to achieve that functionality<br>1.3 Determine web document requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Design server-side scripts | 2.1 Design the web document and server-side code, to interact with an external data source<br>2.2 Design the web document and server-side code, to allow an administrator to insert, update, and delete entries to the external data source<br>2.3 Implement security features in the web document |
| 3. Produce the web documents | 3.1 Write the extensible hypertext markup language (XHTML), considering accessibility<br>3.2 Write server-side scripts to current XHTML standards |
| 4. Test the scripts and debug | 4.1 Test the web document against required the functionality and reiterate until correct<br>4.2 Complete the documentation and submit it to the appropriate person for their approval |
| 5. Set up security | 5.1 Determine the necessary permissions to prevent error messages displaying to the public<br>5.2 Configure server software to minimise potential database attacks |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3 | • Identifies, analyses and evaluates workplace instructions and technical documentation, to determine all business requirements |
| Writing | 2.2, 2.3, 3.1, 3.2, 4.2 | • Develops clear and well-organised material for a specific audience, using precise language to convey explicit information requirements and recommendations |
| Oral Communication | 1.1, 1.3 | • Clearly articulates requirements using the language appropriate to the audience, and participates in a verbal exchange of ideas/solutions |
| Navigate the | 3.2 | • Identifies and complies with the current standards |


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| | | |
|---|---|---|
| world of work | | |
| Interact with others | 4.2 | • Uses a range of strategies to establish a sense of connection, and to build rapport, with clients and co-workers |
| Get the work done | 1.2, 2.1, 2.2, 2.3, 4.1, 5.1, 5.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB415 Produce server-side script for dynamic web pages | ICAWEB415A Produce server-side script for dynamic web pages | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB415 Produce server-side script for dynamic web pages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create dynamic web pages according to all job requirements, using server-side scripting to retrieve information from a web-hosted database
- create scripts for:
  - the quick upload of data to web-hosted databases
  - inserting, updating, and deleting data from a web server database
  - encoding passwords
  - uploading and retrieving images
  - managing sessions, and creating a secure login.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain server-side technologies, and the relevant web scripting languages
- discuss server-side web analysis and design parameters
- summarise and apply, programming control structures and object-oriented programming
- outline web-programming concepts including:
  - the hypertext transfer protocol (HTTP)
  - stateless programming
  - session management
  - authentication and web security.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to the:

- client requirements
- functionality and scope requirements
- security policy
- database server
- internet and server
- software development environment
- web browsers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB416 Customise content management system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create and integrate, a website into an open-source content management system.

It applies to individuals working as web developers who apply a wide range of knowledge and skills, across ICT, to support small to medium enterprises (SMEs) that require broader, rather than more specialised, ICT support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the specifications and requirements | 1.1 Determine the required functionality of the website<br>1.2 Determine the appropriate server-side language that will be used to produce the website<br>1.3 Determine the content structure and navigation of the website<br>1.4 Determine the pre-existing restraints that need to be considered when developing a website solution |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Research the requirements | 2.1 Research the appropriate solutions, based on website requirements, including the programming language, content management system (CMS), licensing structure and hosting structure<br>2.2 Research the techniques, plug-ins and additions to the existing content management system, in order to allow the solution to fulfil the needs determined while analysing website requirements |
| 3. Create a content-management system powered website | 3.1 Install and configure the chosen CMS<br>3.2 Insert and manage, the website content<br>3.3 Install and implement the appropriate techniques, and plug-ins |
| 4. Validate and evaluate the final website | 4.1 Validate the final website markup against current website standards<br>4.2 Validate the content management system performance in different browsers, checking compatibility, and core content management system functionality |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.1, 1.2, 1.4, 2.1, 2.2 | • Researches, analyses and validates information to determine the best solution for client requirements, and builds on prior knowledge to extend understanding |
| Reading | 1.1, 1.2, 2.1, 2.2 | • Identifies, analyses and evaluates industry standards, workplace instructions, online and other technical documentation, to determine all business requirements |
| Writing | 3.2 | • Develops clear and well-organised material for a specific audience, using precise language to convey explicit information requirements, and recommendations |
| Oral Communication | 1.1, 1.2 | • Clearly articulates requirements, using language appropriate to the audience and participates in a verbal exchange of ideas/solutions |
| Navigate the | 2.1 | • Takes personal responsibility for following explicit and implicit requirements for licencing policies, |


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| | | |
|---|---|---|
| world of work | | procedures and regulatory requirements |
| Get the work done | 1.1-1.4, 2.1-2.2, 3.1-3.3, 4.1, 4.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems, and initiates standard procedures in response to these problems, applying problem-solving processes in determining solutions<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB416 Customise content management system | ICAWEB416A Customise content management system | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB416 Customise content management system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research and evaluate client requirements
- create a content management system (CMS) powered website using an open-source solution
- validate the CMS against the standards set by the World Wide Web Consortium (W3C).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- define "content management system" and describe its purpose
- explain markup language and its associated standards
- outline server-side language and security techniques
- discuss web accessibility
- evaluate a content management system (front and backend) in commonly used browsers
- outline W3C standards and their application to website development.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- the client requirements, and content
- a text editor
- a range of browsers


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- the internet for research and code validation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB417 Integrate social web technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to successfully develop and integrate social networking code into new and existing websites.

It applies to individuals working as web developers who apply a wide range of knowledge and skills across a range of general information and communications technology (ICT) environments and support small to medium enterprises (SMEs) that require broader, rather than more specialised, ICT support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the specifications and requirements | 1.1 Evaluate different popular social networking websites<br>1.2 Discuss the benefits of social networking in websites<br>1.3 Discuss the negative aspects of social networking<br>1.4 Define goals, based on the client requirements, for successful social networking integration |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Develop the code and documentation | 2.1 Develop the guidelines for implementing social networking in a website<br>2.2 Develop the code to integrate a social networking website, into a pre-existing website<br>2.3 Use the pre-existing scripts and tools, to integrate a social networking website into a pre-existing website |
| 3. Validate the integration | 3.1 Validate social networking integration<br>3.2 Validate the performance of the social networking integration in different browsers, checking compatibility and display |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.3, 3.2 | • Analyses and consolidates information and data, from a range of sources, against the defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 1.4, 2.1, 2.2 | • Develops clear and well-organised material for a specific audience, using precise language to convey explicit information requirements and recommendations |
| Oral Communication | 1.2, 1.3 | • Determines and confirms client requirements using collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals, to convey and clarify information and to confirm understanding |
| Interact with others | 1.2, 1.3 | • Selects and uses the appropriate conventions and protocols, when communicating with clients in a range of work contexts |
| Get the work done | 1.1, 1.4, 2.1-2.3, 3.1, 3.2 | • Takes responsibility for planning, sequencing and prioritising tasks, and own workload, for efficiency and effective outcomes<br>• Makes routine decisions, and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine |


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| | | |
|---|---|---|
| | | situations<br>• Addresses less predictable problems and initiates standard procedures in response to these problems, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems, to access information, search and enter, data and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB417 Integrate social web technologies | ICAWEB417A Integrate social web technologies | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB417 Integrate social web technologies

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse requirements for the integration of a social networking website into a pre-existing website
- determine the content management functionality, against current programming and security standards
- select an appropriate social networking platform
- develop and implement, social networking integration codes into an existing website
- validate frontend code markup, against the standards set by the World Wide Web Consortium (W3C).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the markup language and its associated standards
- summarise server-side language
- describe the advantages and disadvantages, of integrating social networking into web sites.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- client requirements


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- a text editor
- a range of browsers
- the internet for research
- application programming interface (API) documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB418 Use development software and ICT tools to build a basic website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to build a basic website, consistent with the design, technical requirements and expectations, of a client's business, using current industry software and tools.

It applies to individuals working as web developers who use a wide range of knowledge and skills across a range of general information and communications technology (ICT) environments, and support small to medium enterprises (SMEs) that require broader, rather than more specialised, ICT support.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Select and analyse the website structure and development tools | 1.1 Analyse the business specification, and select the appropriate software<br>1.2 Identify the website's technical needs, and select the appropriate software tools |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Identify the site's structure and navigation flow, and demonstrate an understanding of functionality<br>1.4 Review the design documentation, and integrate the design work with the site's structure and navigation, according to web development standards |
| 2. Begin site construction | 2.1 Take action to ensure user input during website construction<br>2.2 Validate the existing information and basic content, when incorporating data on the website<br>2.3 Apply consistent design specifications to all aspects of the website<br>2.4 Gather feedback from the user on web design, content, accessibility and structure, using the appropriate feedback mechanism |
| 3. Complete and validate the website construction and content | 3.1 Undertake an evaluation of the website, against the technical requirements and the design specification<br>3.2 Test each function, and, process of the website<br>3.3 Conduct navigation tests and hypertext markup language (HTML) compliance with website standards<br>3.4 Stress test the website to meet the design criteria and user load<br>3.5 Record testing results to ensure that the website meets user requirements<br>3.6 Obtain the sign-off and approval of the user |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.4, 3.1 | • Critically analyses complex documentation from a variety of sources, and consolidates information relating to specific criteria to determine requirements |
| Writing | 2.1, 2.4, 3.5, 3.6 | • Prepares and produces dynamic material for a specific audience, using clear and detailed language in order to convey explicit information, requirements and recommendations |


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| | | |
|---|---|---|
| Oral Communication | 2.1, 2.4, 3.6 | • Uses collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals, to convey and clarify information, and to confirm understanding |
| Navigate the world of work | 1.4, 3.3 | • Accepts responsibility and ownership for the task, and makes decisions on completion parameters, and the need for coordination with others<br>• Takes personal responsibility for following explicit and implicit policies, procedures and standards |
| Interact with others | 2.1, 2.4, 3.5, 3.6 | • Selects and uses appropriate conventions and protocols, when communicating with clients in a range of work contexts<br>• Uses a range of strategies, to establish a sense of connection, and to build rapport with clients and co-workers<br>• Elicits and provides feedback to others |
| Get the work done | 1.1-1.4, 2.2, 2.3, 3.1-3.4 | • Takes responsibility for planning, sequencing, and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response to these problems, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems, to access information, search and enter data, and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB418 Use development software and | ICAWEB418A Use development software and | Updated to meet Standards for Training | Equivalent unit |


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| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICT tools to build a basic website | IT tools to build a basic website | Packages.<br><br>Minor change to title. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB418 Use development software and ICT tools to build a basic website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- conduct an assessment of, and document the specifications relating to, the client's website needs
- build a basic website according to client specifications
- validate the final web design against the client's requirements
- confirm and obtain client sign off.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline a basic knowledge of:
  - design principles
  - the issues around accessibility and equity principles, when building for diverse users
- identify and describe the software, and tools, that are used in website development
- outline the general principles of the standard generalised markup language (SGML), and associated documentation standards
- outline the principles of website design
- describe the technical attributes specific to the web
- describe and apply, the types of code used in the generation of web sites.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- basic website specifications and guidelines
- the website development software and tools
- an internet server
- organisational and industry standards.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB419 Develop guidelines for uploading information to a website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to support the effective operation of a website, by establishing content upload guidelines and procedures, in the context of site policies.

It applies to individuals who work in website maintenance roles who are required to ensure that a website remains operational.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop site policies | 1.1 Develop and disseminate policies on acceptable usage, security, privacy and copyright issues, based on technical security and privacy requirements<br>1.2 Develop and disseminate, roles and responsibilities for updating and loading content, and removing redundant information<br>1.3 Document and disseminate information about the nature of |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | content able to be updated and loaded<br>1.4 Establish the upload documentation, and disseminate the processes and procedures for the updating, loading or removal of content on the site<br>1.5 Implement automatic and routine, updating and archiving procedures |
| 2. Establish the updating and loading procedures | 2.1 Allocate, and make available to contributors, directory space to update and load new site content<br>2.2 Identify and make available for use, authoring guides and resources, based on cascading style sheets (CSS) and business style guides<br>2.3 Develop and make available, new content templates to be applied by authors for use based on CSS parameters<br>2.4 Allocate and monitor server permissions<br>2.5 Identify preferred file transfer protocol (FTP) client based on best fit with the technical environment, and make available for use<br>2.6 Customise the FTP client to meet requirements<br>2.7 Identify and develop authoring support tools, such as help files and links<br>2.8 Disseminate authoring support tools, such as help files and links, as necessary |
| 3. Document the guidelines | 3.1 Develop documentation for loading information, taking into consideration security and privacy<br>3.2 Document and make available, links to recommended support tools<br>3.3 Automate the details of recent updates and loading of information, and document on the site |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.2, 2.5 | • Critically analyses complex documentation from a variety of sources, and consolidates information, relating |


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| | | |
|---|---|---|
| | | to specific criteria to determine requirements |
| Writing | 1.1-1.5, 2.3, 2.7, 3.1-3.3 | • Develops procedural material for a specific audience, using clear and detailed language, in order to convey explicit information, requirements and recommendations |
| Navigate the world of work | 1.1, 1.2, 1.5, 3.1 | • Modifies or develops organisational policies and procedures, to comply with legislative requirements and organisation goals<br>• Contributes to roles and responsibilities, of self and others |
| Interact with others | 1.1-1.4, 2.1, 2.4, 2.8, 3.2 | • Selects and uses, the appropriate conventions and protocols when communicating with clients and co-workers, in a range of work contexts<br>• Uses a range of strategies to establish a sense of connection, and to build rapport with clients and co-workers<br>• Cooperates with others, and contributes to work practices, where joint outcomes are expected, and deadlines are to be met<br>• Identifies and explores, differences in a diverse range of people in the work context, and makes adjustments to communication in recognition of these differences |
| Get the work done | 1.1-1.5, 2.1, 2.2, 2.4-2.7, 3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Contributes to the continuous improvement of current work practices, by applying basic principles of analytical and lateral thinking<br>• Uses familiar digital technologies and systems to access information, search and enter data, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB419 Develop guidelines for uploading | ICAWEB419A Develop guidelines for uploading | Updated to meet Standards for Training | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| information to a website | information to a website | Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB419 Develop guidelines for uploading information to a website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a policy for uploading and removing website content that:
  - ensures that the policy reflects the strategic intent of the site, while maintaining site security and privacy standards
  - adheres to quality standards for the updating process and data
  - ensures that updates occur in a secure and convenient manner
  - develops updating and loading procedures for website content
  - reviews guidelines for uploading content to websites.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline copyright and intellectual property issues
- summarise the information architecture
- identify and describe, internet protocols
- outline the procedures for disseminating and documenting technical specifications
- clarify the website's architecture and business process design, and how e-business sites may fit into corporate strategy.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:


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- the servers
- an e-business website
- the file transfer protocol (FTP) software
- the organisational documentation, requirements and guidelines.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB420 Write content for web pages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to write concise, and clear, content for web pages on behalf of a client.

It applies to individuals who are proficient communicators in the web development field.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to develop content for the site | 1.1 Identify customer information needs, with reference to the audience, site functionality and client requirements<br>1.2 Confirm site purpose and functionality, with reference to client specification<br>1.3 Select content channels and format as part of client requirements<br>1.4 Obtain the templates and style guides<br>1.5 Identify the content and analyse with reference to audience |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | needs, maintenance requirements, information architecture, and site design and functionality<br>1.6 Negotiate any alterations to site design, as required by the content and by client requirements |
| 2. Write the site content | 2.1 Create the content according to content and client requirements<br>2.2 Establish that the content is easily and conveniently, accessible and visible, and that information is clear, understandable, and logical<br>2.3 Edit the content with reference to audience needs, site functionality, content and client requirements |
| 3. Upload the content | 3.1 Log into the server site, using either the administrative or anonymous file transfer protocol in preparation for upload<br>3.2 Launch the transfer file transfer protocol (FTP) client, and navigate to the destination directory, either graphically or by using a command line interface<br>3.3 Store and order the files according to logical design and user needs, using an accepted file extension scheme<br>3.4 Demonstrate the operation in closed contention mode |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.6, 2.1-2.3, 3.1-3.3 | • Reads and interprets specifications, computer program interface and other documentation, from a variety of sources, and consolidates information, to determine requirements |
| Writing | 1.2, 1.6, 2.1, 2.3, 3.1-3.3 | • Writes, edits and proofreads documents for internet use, to ensure clarity of meaning, and accuracy and consistency of information |
| Oral Communication | 1.1, 1.2, 1.6 | • Determines and confirms client requirements, using collaborative and inclusive techniques, including active listening and questioning, and reading of verbal and non-verbal signals, to convey and clarify information, and to confirm understanding |


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| | | |
|---|---|---|
| Get the work done | 1.1, 1.3-1.5, 2.2, 2.3, 3.1-3.4 | • Takes responsibility for planning, sequencing, and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions, and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, present information, and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB420 Write content for web pages | ICAWEB420A Write content for web pages | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB420 Write content for web pages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- write content for web pages that recognises cultural differences and diversity, in developing website content
- upload content for a website
- remove content on a website.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline content features, including clarity, ease of viewing and readability
- explain copyright and intellectual property legislation, relating to web page content
- summarise the document design, web design and usability
- discuss the functions and features of:
  - micro-content elements, such as headings, highlighted words and link text
  - style guides, such as cascading style sheets (CSS)
- explain the information architecture
- summarise the instructional design principles
- outline the obligations of merchants and service providers
- outline the organisational requirements relating to web page content and user diversity
- explain privacy requirements relating to web page content.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- copy edit resources
- culturally reviewed content
- style guides and templates
- the website specifications
- word-processing and web development software
- the organisational documentation, and industry requirements.
-

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB421 Ensure website content meets technical protocols and standards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure content for a website is in accordance with customer specifications, and is compatible with the appropriate technical and infrastructure protocols.

It applies to individuals working in the web development area who are required to populate websites according to clear benchmarks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm that content meets the required standards | 1.1 Take action to ensure that text-based content meets client needs, and the required style standards<br>1.2 Confirm that the multimedia-based content meets the business design standards, or the overall look of the website<br>1.3 Check that the mix between multimedia and text-based content, provides the required level of interaction identified in the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | project brief<br>1.4 Test that the content conforms to client expectations and the technology |
| 2. Confirm that the technology supports the content | 2.1 Take action to ensure that the protocols required for multimedia content are available<br>2.2 Check and confirm, that the bandwidth required to support the content is available<br>2.3 Check and confirm, that the servers support the content and levels of interaction<br>2.4 Check and confirm, that the plug-ins required to support content are made available<br>2.5 Test and confirm, that compression techniques support delivery of content |
| 3. Test the content | 3.1 Test and confirm that content displays as intended and according to business requirements in target browsers<br>3.2 Test with beta users that content encourages interaction and content interaction performs as intended and record results<br>3.3 Test and confirm that plug-ins download with a minimum of steps, complication and time<br>3.4 Test that interactive tools are available and provide the expected results |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 1.4, 2.2, 3.1 | • Identifies and analyses, online information and client specifications, to ensure that all business requirements are met |
| Writing | 3.2 | • Documents outcomes of tests using industry relevant terminology and recognised symbols |
| Oral Communication | 1.1 | • Clearly articulates requirements, using the language appropriate to the audience, and participates in a verbal exchange of ideas/solutions |


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| | | |
|---|---|---|
| Numeracy | 3.3 | • Uses basic mathematical formula to time technological processes |
| Navigate the world of work | 1.1, 1.2, 3.1 | • Takes personal responsibility for following explicit and implicit policies, procedures and specifications |
| Interact with others | 1.1, 1.2, 3.2 | • Elicits feedback and provides feedback to others, in order to improve work practices and processes<br>• Selects and uses the appropriate conventions and protocols, when communicating with clients and co-workers in a range of work contexts |
| Get the work done | 1.1, 1.4, 2.1-2.5, 3.1-3.4 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, present information, and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB421 Ensure website content meets technical protocols and standards | ICAWEB421A Ensure website content meets technical protocols and standards | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB421 Ensure website content meets technical protocols and standards

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- carry out checks and tests, for a mix of content for a website, to ensure that it meets specifications and standards
- check and use, correct streaming and compression techniques
- manage the file transfer protocols (FTPs)
- test and confirm, content functionality and operability.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the applicability of copyright, privacy and intellectual property to website development
- explain common software compression algorithms, and associated technologies
- summarise the file transfer protocol (FTP) software protocols
- identify and summarise internet protocols
- explain the server access security principles and procedures
- outline the server operating systems
- summarise streaming technologies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work and, include access to:


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- documents detailing organisational style guide or policies
- a personal computer, on which software installation may be performed
- compression and streaming software
- an internet connection
- a live network
- network components, hardware and software
- networked computers
- a server, and workstation hardware and software
- style guides, and the design brief
- technical documentation and installation manuals
- software currently used in industry
- vendor hardware and software components.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB422 Ensure website access and useability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to apply the principles of accessibility and equity in the context of website development.

It applies to individuals who are proficient communicators and who provide frontline technical support for ensuring that websites are accessible to end users.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Design a site user test | 1.1 Establish the usability test methods<br>1.2 Identify critical business functions<br>1.3 Identify the full range of users<br>1.4 Confirm user expectations through market analysis, business intelligence and customer feedback<br>1.5 Establish the performance potential of the business, from the business requirements or other approved sources |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.6 Establish the performance measurement and success criteria, to measure actual performance against user expectations<br>1.7 Test the site when ready and record the outcomes |
| 2. Conduct the user test | 2.1 Document the process performance indicators and benchmarks, and disseminate them to a sample group of users<br>2.2 Assemble a full representative range of users and preferred technologies, to test site features and functions, based on the business specification<br>2.3 Ensure maximum user satisfaction, through ease of navigation controls and design<br>2.4 Ensure that user and legal, accessibility, privacy and equity requirements and expectations are met |
| 3. Evaluate the user test | 3.1 Collate site performance results and measure them against performance indicators and benchmarks, based on user expectations<br>3.2 Identify performance shortfalls, and ensure that acceptable performance solutions are developed according to business requirements<br>3.3 Establish an evaluation feedback mechanism and provide to users |
| 4. Document the results | 4.1 Identify solutions to the problems encountered during the testing phase<br>4.2 Discuss problems with developers and ensure that the solutions are continuously refined<br>4.3 Ensure that the proposed solutions meet business requirements and user expectations<br>4.4 Document the final solutions in line with organisational guidelines, and distribute to the appropriate person |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.2, 1.3, 1.4, 1.5, 2.2, 3.1, 3.2, 4.3, 4.4 | • Analyses and consolidates information and data from a range of sources, against the defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 1.5, 1.6, 1.7, 2.1, 3.1, 3.2, 3.3, 4.4 | • Accurately records information and prepares correspondence, and documentation, using clear language, and organisational formats and protocols |
| Oral Communication | 1.4, 1.5, 4.2, 4.3 | • Uses listening and questioning skills to confirm understanding for requirements, participates in a verbal exchange of ideas/solutions, and uses appropriate, detailed and clear language, to address key personnel and website users |
| Numeracy | 3.1, 3.2 | • Performs mathematical calculations to analyse test and performance data, and statistics |
| Navigate the world of work | 2.2, 2.4, 4.4 | • Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 2.1-2.3, 3.3, 4.4 | • Selects and uses appropriate conventions and protocols, when communicating with clients and co-workers in a range of work contexts<br>• Elicits feedback and provides feedback to others, while testing usability |
| Get the work done | 1.1-1.7, 2.1-2.3, 3.1, 3.2, 4.1-4.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Addresses less predictable problems, and initiates standard procedures in response to these problems, applying problem-solving processes in determining solutions<br>• Uses familiar digital technologies and systems to access information, search and enter data, and code, present information and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB422 Ensure | ICAWEB422A Ensure website | Updated to meet | Equivalent |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| website access and useability | access and useability | Standards for Training Packages | unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB422 Ensure website access and useability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research user needs
- design a valid usability test, and set benchmark metrics
- facilitate the test process and document the results
- document and propose solutions, to meet user needs and the current, and future, needs of the business.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the principles of accessibility and equity, in the context of website development
- outline the technical performance measurement of a typical web site
- describe common user testing principles and techniques
- outline the following important considerations for a website:
  - architecture
  - privacy
  - security
- describe workload metrics, and explain the implications for website design
- describe the website design as it applies to:
  - business process
  - customer and business liaison
  - electronic commerce modelling language
- outline the organisational policies and procedures relating to website functionality.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- analysis software
- the e-business website
- the organisational policy and procedures
- the requirements documentation
- a site server
- site server software
- web servers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB423 Ensure dynamic website security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to ensure, and maintain, the security of a dynamic commercial website.

It applies to individuals working as website developers responsible for security of dynamic websites, who are proficient communicators and can analyse technical data capably and with efficiency.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Undertake the risk assessment | 1.1 Identify the functionality and features of the website, and confirm these with the client<br>1.2 Identify security threats, with reference to the functionality of the site and organisational security policy, legislation and standards<br>1.3 Complete a risk analysis to prioritise the security threats, and identify system vulnerabilities |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Identify resource and budget constraints, and validate with the client as required<br>1.5 Source the appropriate products, security services and equipment, according to enterprise purchasing policies |
| 2. Secure the operating systems | 2.1 Identify operating system (OS) and cross-platform vulnerabilities<br>2.2 Make the appropriate scripting or configuration adjustments, with reference to the functionality of the site and the security policy<br>2.3 Identify and rectify weaknesses specific to the OS |
| 3. Secure the site server | 3.1 Configure the web server securely, with reference to the required functionality and the security policy<br>3.2 Review and analyse, server-side scripting with reference to the required functionality and the security policy<br>3.3 Install firewalls as required<br>3.4 Establish access control permissions to the server and database |
| 4. Secure data transactions | 4.1 Identify data transactions, with reference to the functionality and features of the website<br>4.2 Identify and apply, the channel protocols related to the requirements<br>4.3 Install and configure, the payment systems |
| 5. Monitor and document the security framework | 5.1 Develop a program of selective independent audits and penetration tests<br>5.2 Determine the performance benchmarks<br>5.3 Implement audit and test programs, and record, analyse and report the results<br>5.4 Make security framework changes based on the test results<br>5.5 Develop the site-security plan, with reference to the security policy and requirements<br>5.6 Develop and distribute, related policy and procedures to the client |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3-1.5, 2.1, 2.3, 3.2, 4.1, 4.2, 5.4 | • Reads and interprets plans, specifications, computer program interface, and other documentation from a variety of sources, and consolidates information to determine requirements |
| Writing | 1.1, 1.3, 1.4, 2.2, 3.3, 4.3, 5.1, 5.2, 5.3, 5.5, 5.6 | • Makes adjustments to software scripting, and creates procedural and related workplace documentation, for a specific audience, using clear and detailed language in order to convey explicit information |
| Oral Communication | 1.1, 1.3, 1.4, 5.3, 5.6 | • Uses listening and questioning skills to confirm understanding for technical, operational and business requirements, participates in a verbal exchange of ideas/solutions, and uses appropriate, detailed and clear language to address the client |
| Numeracy | 1.4, 1.5, 4.3 | • Undertakes numerical analyses during testing, and calculates, and evaluates system results and performance |
| Navigate the world of work | 1.2, 1.5, 3.1, 3.2, 5.5 | • Accepts responsibility and ownership of tasks, and makes decisions on completion parameters, and the need for coordination with others<br>• Takes personal responsibility for following explicit and implicit policies, procedures and legislative requirements |
| Interact with others | 1.1, 1.4, 5.6 | • Selects and uses, the appropriate conventions and protocols, when communicating with clients and co-workers in a range of work contexts |
| Get the work done | 1.1-1.5, 2.2, 2.3, 3.2-3.4, 4.3, 5.1-5.5 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response to these problems, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, |


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| | | |
|---|---|---|
| | | present information, and communicate with others, cognisant of data security and safety |

## Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB423 Ensure dynamic website security | ICAWEB423A Ensure dynamic website security | Updated to meet Standards for Training Packages | Equivalent unit |

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB423 Ensure dynamic website security

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- determine the client security framework, and its requirements
- identify any potential security threats to a website, and document the risk and performance benchmarks
- develop and implement, strategies to secure a dynamic website.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the Australian Computer Society Code of Ethics
- explain a client business domain, its structure, function and organisation, including the organisational issues surrounding security
- identify and outline the legislation, regulations, and codes of practice pertinent to website information, including:
  - copyright
  - intellectual property
  - privacy
  - ethics
- outline current industry-accepted hardware and software products
- describe desktop applications and operating systems (OS), as they relate to website security
- explain the functions and features of:
  - automated intrusion detection software
  - authentication and access control


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    - common stored account payment systems
    - cryptography
    - common gateway interface (CGI) scripts
    - generic secure protocols
    - stored-value payment systems
- explain the implications of network address translation (NAT), related to:
    - securing internal, internet protocol (IP) addresses
    - buffer overruns and stack smashing
    - operating system deficiencies
    - the protocol stack for internet communications
    - physical web server security, particularly remote
- describe the advantages, and disadvantages, of using a range of security features
- identify and describe, host security threats.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a dynamic website
- a security plan
- the user requirements
- all relevant legislation, standards and organisational requirements.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB424 Evaluate and select a web hosting service

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to determine a client's current and future internet service providers (ISPs) needs.

It applies to individuals working in information and communications technology (ICT) who take responsibility for comparing and evaluating internet service provider (ISP) services, and are technically adept and proficient communicators, with a broad knowledge of internet technologies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Select the ISP | 1.1 Review comparable characteristics of a range of hosting services<br>1.2 Review the client usage, and ensure that email and mailing list services are flexible enough, to meet current and future business needs<br>1.3 Review the support service standards, to ensure that they meet |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | the business needs<br>1.4 Ensure that the ISP hosting service has sufficient data capacity to cover partial outages<br>1.5 Determine the availability of security technologies<br>1.6 Determine the availability of scripting languages<br>1.7 Evaluate optional server applications for advanced web business functions<br>1.8 Confirm the client selection criteria, and select the ISP hosting service that best matches the criteria |
| 2. Ensure guarantee of a permanent online presence | 2.1 Establish that the web-hosting service has systems in place to monitor server performance and availability<br>2.2 Negotiate the escalation procedures and performance standards with the ISP<br>2.3 Establish that the security and backup procedures are articulated, and that they meet business needs |
| 3. Ensure that the web host meets the technical requirements | 3.1 Take action to ensure that the operating system supports the preferred business development software, applications, extensions and databases<br>3.2 Establish that the web-host servers support dynamic websites, using the preferred business technologies<br>3.3 Establish that the web host provides current, and future, disk space requirements<br>3.4 Establish that site-analysis reports are available, and are flexible enough to meet business needs<br>3.5 Establish that security systems and payment technologies, meet business and customer expectations, and requirements |
| 4. Benchmark performance and test it against specified criteria | 4.1 Test the performance of the ISP during on and off peak times, and record the outcomes<br>4.2 Establish that email and mailing services have backup procedures in place, and are protected from damage, erasure or unwanted damage<br>4.3 Take action to ensure that the support services perform according to business needs |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.8, 2.1, 3.1 | • Reads and interprets specifications, the computer program interface, and documentation from a variety of sources, and consolidates information to determine requirements |
| Writing | 2.1-2.3, 3.5, 4.1 | • Prepares documentation expressing ideas, explores complex issues, and is constructed logically, succinctly and accurately |
| Oral Communication | 2.2, 2.3 | • Uses listening and questioning skills to confirm understanding for all business requirements, participates in a verbal exchange of ideas/solutions, and uses appropriate, detailed and clear language to address client and ISP personnel |
| Numeracy | 1.4 | • Uses mathematical formulas to estimate data storage requirements |
| Interact with others | 2.2, 2.3 | • Selects and uses, the appropriate conventions and protocols, when communicating with clients and co-workers in a range of work contexts |
| Get the work done | 1.1, 1.2, 1.4, 1.8, 2.1-2.3, 3.1-3.5, 4.1-4.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response to these problems, applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, present information, and communicate with others, cognisant of data security and safety |


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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB424 Evaluate and select a web hosting service | ICAWEB424A Evaluate and select a web hosting service | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB424 Evaluate and select a web hosting service

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- assess client needs for the current and future needs of the business
- select an internet service provider (ISP)
- evaluate the web hosting service by ensuring that:
  - the price meets the client's budgetary requirements
  - the security and technical requirements of the business are met
- comply with the client benchmarks, and test
- monitor the performance of the ISP during on and off peak times.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline different web hosting service provision options, and their scalability
- discuss internet security issues
- explain the operating systems used by ISPs
- summarise performance expectations from customers and end users
- outline server technologies
- summarise web hosting services, and performance benchmarks.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- hosting plans, prices and service agreements
- the current technology underpinning the ISP, and the services offered
- a business plan, outlining the future directions for the business.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB425 Apply structured query language to extract and manipulate data

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to produce structured query language (SQL) statements to work with server-side scripts, enabling web designers to interact with web server databases.

It applies to individuals who are employed as web designers responsible for creating server-side interaction with dynamic web pages, using SQL as a means of communicating with the database.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify SQL requirements from the specification documentation | 1.1 Determine the information to be used from the database<br>1.2 Identify the tables that hold this information<br>1.3 Identify the primary keys in these tables<br>1.4 Identify the relationships between these tables, including |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | foreign keys |
| 2. Create a relational database | 2.1 Create tables in a database, using SQL statements<br>2.2 Identify the primary and foreign keys for database table<br>2.3 Manipulate the data in a database, using SQL statements<br>2.4 Query the database, using SQL statements<br>2.5 Write SQL statements to retrieve information from the database |
| 3. Test SQL results | 3.1 Construct test data to test SQL statements<br>3.2 Determine the expected results in order to verify SQL statements<br>3.3 Verify the result of the constructed SQL statements, against the expected results |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.3, 3.3 | • Analyses and consolidates information and data from a range of sources, against the defined criteria and requirements, and checks for accuracy and completeness |
| Writing | 2.1, 2.3-2.5, 3.1, 3.2 | • Uses clear and specialised technical syntax when creating codes and interrogating databases<br>• Prepares and produces, diagrammatic models and associated documents, that that convey complex relationships between data |
| Get the work done | 1.1, 1.4, 2.2-2.5, 3.2, 3.3 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response to these problems, applying problem-solving processes in determining a |


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| | | |
|---|---|---|
| | | solution<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, present information, and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB425 Apply structured query language to extract and manipulate data | ICAWEB425A Apply structured query language to extract and manipulate data | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB425 Apply structured query language to extract and manipulate data

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify structured query language (SQL) requirements
- create the databases and tables
- generate queries for one or more tables, to provide the required data
- add, modify and delete records from the database tables
- test and verify SQL statements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the features and application of the following aggregate functions:
  - MIN
  - MAX
  - SUM
  - AVG
  - COUNT
  - COUNT(*)
- explain the features and application of the following clause functions:
  - GROUP BY
  - HAVING
  - ORDER BY
  - dates and times
  - SQL data types


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- numbers
- text
- SQL syntax:
- SELECT
- FROM
- WHERE
- LIKE
- DISTINCT
- CREATE
- ALTER TABLE
- INSERT INTO
- UPDATE
- DELETE
- DROP

- describe the principles of "combining and/or condition" in SQL statements and Boolean operators:
  - IN and BETWEEN conditional operators
  - mathematical operators
  - table joins (relationships).

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a development environment
- a database server.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB429 Create a markup language document to specification

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use a text editor to design, create and save web pages to a given specification, rather than using an authoring tool.

It applies to individuals working as web designers and developers who interpret client briefs, generate a framework for internet information, and are resourceful in their application of technology in using a markup language.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the specifications and requirements | 1.1 Determine the uses and audience of the document<br>1.2 Determine the appropriate markup language, based on the document's uses and audience, and current industry best practice<br>1.3 Determine the document structure |
| 2. Create the document | 2.1 Create and assign the basic elements of the document, taking |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| structure | into account accessibility<br>2.2 Mark-up the sections of the document required to describe the structure |
| 3. Incorporate the web page components | 3.1 Identify the web page components<br>3.2 Evaluate suitable web page components<br>3.3 Include the required web page components |
| 4. Validate the documents | 4.1 Validate the markup language document, against the specifications and record the outcomes<br>4.2 Validate the markup language document in different browsers for compatibility, and record the outcomes |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 4.1, 4.2 | • Identifies, analyses and evaluates instructions, technical information and industry guidelines, to determine client needs and business requirements |
| Writing | 1.3, 2.1, 2.2, 3.3, 4.1, 4.2 | • Produces documentation for a specific audience, using clear and detailed language in order to convey explicit information<br>• Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information |
| Navigate the world of work | 1.2 | • Takes personal responsibility for following explicit and implicit policies, procedures and industry best practice |
| Get the work done | 1.1, 1.2, 3.1, 3.2, 4.1, 4.2 | • Takes responsibility for planning, sequencing and prioritising tasks and own workload, for efficiency and effective outcomes<br>• Makes routine decisions and implements standard procedures for routine tasks, using formal decision-making processes for more complex and non-routine situations<br>• Addresses less predictable problems and initiates standard procedures in response to these problems, |


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| | | |
|---|---|---|
| | | applying problem-solving processes in determining a solution<br>• Uses familiar digital technologies and systems to access information, search and enter, data and code, present information, and communicate with others, cognisant of data security and safety |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB429 Create a markup language document to specification | ICAWEB429A Create a markup language document to specification | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB429 Create a markup language document to specification

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, create and save a document using a markup language, without using an automated code generation program
- use a text editor for generating the markup language code for use on common web browsers
- validate the markup document against the standards set by the World Wide Web Consortium (W3C).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- recognise and outline the use of markup languages including:
  - dynamic hypertext markup language (DHTML)
  - hypertext markup language (HTML)
  - standard generalised markup language (SGML)
  - virtual reality modelling language (VRML)
  - extensible hypertext markup language (XHTML)
  - extensible markup language (XML)
- identify and describe, standards applicable to a markup language
- summarise the range of available web browsers and their accessibility
- identify and describe, the issues of accessibility.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- an organisational style guide or policy
- all user requirements
- a text editor
- a range of browsers
- the internet, to validate the markup.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB501 Build a dynamic website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse and design websites to meet technical requirements.

It applies to individuals working as web developers who are responsible for the analysis, design, implementation, and testing of websites.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define and analyse the technical requirements | 1.1 Identify the business requirements and appropriate standards<br>1.2 Determine and document, the purpose, expectations and functionality of the website<br>1.3 Analyse the user-interface design requirements, including user needs, design principles and operating systems |
| 2. Produce the software design specifications | 2.1 Produce a hierarchy of the website showing navigation<br>2.2 Ensure that the content is logical and accessible to the user |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Produce the prototype of the user interface<br>2.4 Determine and document, the architectural requirements<br>2.5 Design the data storage requirements |
| 3. Develop the website to the specified design | 3.1 Create the software components of the website<br>3.2 Test the components of the website<br>3.3 Integrate the components to produce the web application |
| 4. Test the web application | 4.1 Test the website against the requirements<br>4.2 Complete and document the design structure<br>4.3 Obtain client feedback and adjust web applications as appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.2, 2.4, 4.1 | • Critically analyses complex documentation from a variety of sources, and consolidates information, relating to specific criteria to determine requirements |
| Writing | 1.2, 2.1, 2.3-2.5, 3.1, 3.3, 4.2 | • Prepares documentation expressing ideas and exploring complex issues, that is constructed logically, succinctly and accurately<br>• Writes and edits computer code and technical data, to ensure syntax and accuracy |
| Navigate the world of work | 1.1 | • Takes full responsibility for following policies, procedures and standards |
| Interact with others | 2.2, 4.3 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers, in a range of work contexts |
| Get the work done | 1.1-1.3, 2.2-2.5, 3.1-3.3, 4.1, 4.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making |


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| | | |
|---|---|---|
| | | processes for complex and non-routine situations<br>• Uses and investigates new digital technologies, and applications, to manage and manipulate data, and communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB501 Build a dynamic website | ICAWEB501A Build a dynamic website | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB501 Build a dynamic website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse the technical requirements for a dynamic web site
- produce software design specifications
- create a website, using efficient and effective code to meet the technical requirements, and test and document a website against the requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise the principles of analysis and design
- outline programming control and design structures, and object-oriented programming
- explain web programming concepts, including:
  - authentication and web security
  - hypertext transfer protocol (HTTP)
  - session management
  - stateless programming.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a development environment


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- a server
- a database server
- browsers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB502 Create dynamic web pages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to produce both server and client-side content.

It applies to individuals working as web developers who are responsible for creating dynamic pages to provide interaction between the user and the website. They use highly developed technical and analytical skills when developing the user-website interface.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the client and server-side dynamic content | 1.1 Review the technical requirements<br>1.2 Identify the sections of the website, requiring client-side dynamic content<br>1.3 Identify the sections of the website, requiring server-side dynamic content<br>1.4 Select the appropriate languages and technology to meet the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | requirements |
| 2. Create the dynamic content | 2.1 Create pages using the appropriate languages<br>2.2 Ensure that the code conforms to current industry best practice and standards |
| 3. Test the dynamic pages | 3.1 Test the website in a variety of browsers<br>3.2 Ensure that the required dynamic content functions according to the specified requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.2 | • Critically analyses documentation from a variety of sources and records, and consolidates information, to determine requirements |
| Writing | 2.1 | • Prepares documentation expressing ideas, explores complex issues, and is constructed logically, succinctly and accurately<br>• Writes and edits computer code, and technical data, to ensure the correct syntax and accuracy |
| Navigate the world of work | 2.1 | • Takes full responsibility for following policies, procedures and standards |
| Get the work done | 1.2-1.4, 3.1, 3.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies, and applications, to manage and manipulate data, and to communicate effectively with others in a secure and stable digital environment |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB502 Create dynamic web pages | ICAWEB502A Create dynamic web pages | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB502 Create dynamic web pages

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce dynamic web pages that include both client and server-side dynamic content
- create efficient and effective code to meet technical requirements
- test the website and code in a variety of web browsers.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain web-programming concepts, including:
  - authentication and web security
  - hypertext transfer protocol (HTTP)
  - session management
  - stateless programming
- identify and describe internet technologies including:
  - programming control structures
  - object-oriented programming
- recognise and outline various web browsers.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:


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- a development environment
- a server
- a database server
- browsers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB503 Create web-based programs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop web applications.

It applies to individuals who work as web developers and have well-honed technical skills to take responsibility for implementing code required to create web applications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the hypertext transfer protocol (HTTP) and its implications when developing web applications | 1.1 Identify the hypertext transfer protocol (HTTP) required<br>1.2 Recognise the limitations HTTP has when developing web applications<br>1.3 Identify the advantages of HTTP in developing web applications |
| 2. Implement session management | 2.1 Create the code to handle session management<br>2.2 Create the code that retains the user’s interaction with the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | website<br>2.3 Review and debug the code |
| 3. Develop applications in a stateless environment | 3.1 Develop web applications that keep track of data between browser requests<br>3.2 Document the web application, with particular reference to its management of statelessness |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 2.3 | • Identifies and analyses the code for syntax and accuracy |
| Writing | 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2 | • Prepares documentation expressing ideas and exploring complex issues, that is constructed logically, succinctly and accurately<br>• Writes and edits computer code and technical data, to ensure syntax and accuracy |
| Oral Communication | 1.1, 1.2 | • Clearly explains detailed information using the language, tone and pace appropriate to the audience |
| Get the work done | 1.3, 2.1-2.3, 3.1, 3.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies, and applications, to manage and manipulate data, and communicate effectively with others, in a secure and stable digital environment |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB503 Create web-based programs | ICAWEB503A Create web-based programs | Updated to meet Standards for Training Packages.<br><br>Minor edits to the performance criteria for clarity. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB503 Create web-based programs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- recognise the hypertext transfer protocol (HTTP), and its limitations
- implement session management
- develop web applications that track user data
- document web applications.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of web analysis and design
- explain programming control structures and object-oriented programming
- summarise web programming concepts including:
  - authentication and web security
  - hypertext transfer protocol (HTTP)
  - session management
  - stateless programming.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a website development environment


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- a server
- a database server
- web browsers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB504 Build a document using eXtensible markup language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design, and build, a valid extensible markup language (XML) document to suit a specified requirement.

It applies to individuals working in development roles in a variety of information technology areas who are technically proficient in the use of XML documents.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan the process | 1.1 Review the specified requirements<br>1.2 Produce a plan to analyse the specified requirements<br>1.3 Plan the design, and build, of valid XML documentation, allowing for iterative development |
| 2. Analyse the specified requirements | 2.1 Determine and document the purpose, expectations and functionality of the XML document |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Determine the hardware, software and tools needed to design the document<br>2.3 Determine the requirements for the document<br>2.4 Determine the appropriate design methodologies, including using the software engineering life cycle |
| 3. Design and develop the document | 3.1 Decide on document type definition (DTD), if required<br>3.2 Define the required entities, elements and their attributes<br>3.3 Produce the document, following the appropriate standards and declaring DTD, required entities, elements and their attributes, including associated graphics or sounds |
| 4. Test the document | 4.1 Test the document off-line against the specifications, and confirm the document's validity<br>4.2 Test, where appropriate, the document online against the specifications, and with a representative audience<br>4.3 Analyse the test results and confirm the document’s validity |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.3, 4.1, 4.2, 4.3 | • Critically analyses specifications and other documentation from a variety of sources, and consolidates information, to determine requirements |
| Writing | 1.2, 1.3, 2.1, 2.2, 3.3 | • Prepares documentation expressing ideas, explores complex issues, and is constructed logically, succinctly and accurately<br>• Writes and edits computer code and technical data, to ensure syntax and accuracy |
| Navigate the world of work | 3.3 | • Takes full responsibility for following policies, procedures and industry standards |
| Interact with others | 4.2 | • Selects, implements, and seeks to improve protocols governing communications to clients and co-workers, in a range of work contexts |


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| | | |
|---|---|---|
| Get the work done | 1.1, 1.2, 2.1-2.4, 3.1-3.3, 4.1-4.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies and applications, to manage and manipulate data, and communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB504 Build a document using eXtensible markup language | ICAWEB504A Build a document using eXtensible markup language | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB504 Build a document using eXtensible markup language

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- review the specifications, and plan the design of an extensible markup language (XML) document
- determine specific requirements
- produce a valid XML document, following the appropriate standards
- test an XML document
- evaluate the test results.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain business process and information modelling
- describe markup language
- explain unified-modelling language
- describe the hardware and software implications for XML programming
- identify and summarise, the various standards that will impact on XML programming.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- the client or business requirements
- an XML parser or suitable web browser


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- a XML authoring tool.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB505 Develop complex web page layouts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to design and create a web page layout, to suit a range of devices and a variety of browsers, to industry standards.

It applies to individuals who work as web designers and web developers, have a highly developed understanding of design principles and apply technical skills proficiently, according to unique specifications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Build a web page according to the design prototype | 1.1 Identify the main sections of the web page layout<br>1.2 Create the web page structure<br>1.3 Position web page elements to achieve the design specification |
| 2. Ensure web page is validated and tested in major browsers | 2.1 Validate the cascading style sheet (CSS) against industry standards<br>2.2 Correct browser incompatibilities, using the most robust |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | techniques<br>2.3 Test the website in various browsers |
| 3. Ensure website is accessible | 3.1 Check that the website is accessible, to ensure that it can be viewed<br>3.2 Check website sections, to ensure accessibility<br>3.3 Check web page elements, to ensure accessibility |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 3.1, 3.2, 3.3 | • Critically analyses specifications and other documentation from a variety of sources, and consolidates information, to determine requirements |
| Writing | 1.2, 1.3 | • Develops clear and well-organised technical material for specific audiences, using precise language to convey explicit information |
| Numeracy | 1.3 | • Takes measurements and performs calculations, for the web page layout |
| Navigate the world of work | 2.1 | • Takes full responsibility for following policies, procedures and industry standards |
| Get the work done | 1.1, 1.2, 2.2, 2.3, 3.1, 3.2, 3.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies, and applications, to manage and manipulate data, and communicate effectively with others, in a secure and stable digital environment |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB505 Develop complex web page layouts | ICAWEB505A Develop complex web page layouts | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB505 Develop complex web page layouts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a complex website layout
- layout page elements to suit a variety of devices
- test web pages in a variety of browsers
- validate the pages against industry standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the principles of web site design
- describe and apply the following in web site design:
  - hypertext markup language (HTML) and extensible hypertext markup language (XHTML)
  - cascading style sheet (CSS)
  - hypertext transfer protocol (HTTP)
  - techniques to correct browser incompatibilities
- outline World Wide Web Consortium (W3C) standards, and explain their application to web design.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:


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- a computer
- an aesthetic presentation brief
- a variety of browsers
- the internet, to validate web pages against the W3C.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB506 Develop complex cascading style sheets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop complex cascading style sheets (CSS) that are attached to a markup language document.

It applies to individuals working as web designers and developers who are involved in the layout and appearance of web pages, and have a highly developed understanding of design principles, and software languages, and can apply protocols and standards proficiently.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine the requirements and develop CSS | 1.1 Obtain user requirements for style<br>1.2 Develop CSS to match user requirements |
| 2. Use advanced CSS techniques to create web pages | 2.1 Style the elements of a web page, using advanced CSS techniques<br>2.2 Position the document elements, using advanced CSS |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.3 Apply the style sheets to multiple pages in a website |
| 3. Ensure web page and CSS are validated and tested in all major browsers | 3.1 Validate CSS against industry standards<br>3.2 Test the website in various browsers<br>3.3 Rectify browser differences to ensure that the website is accessible |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.3, 3.1 | • Identifies and analyses technical, workplace, and industry information, to ensure that all the job requirements are met |
| Writing | 1.1, 1.2, 2.1-2.3 | • Develops clear and well-organised technical material for specific audiences, using technical language to convey explicit information |
| Oral Communication | 1.1 | • Uses listening and questioning techniques to clarify job specifications with the client |
| Numeracy | 2.2 | • Takes measurements and performs calculations for the web page layout |
| Navigate the world of work | 3.1 | • Takes full responsibility for following policies, procedures and industry standards |
| Get the work done | 1.2, 2.1, 2.3, 3.2, 3.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies, and applications, to manage and manipulate data, and communicate effectively with others, in a secure and stable digital environment |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB506 Develop complex cascading style sheets | ICAWEB506A Develop complex cascading style sheets | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB506 Develop complex cascading style sheets

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop a complex website, styled and formatted, using cascading style sheets (CSS), according to user requirements
- create a complex page layout using CSS
- test the web pages in a variety of browsers
- validate CSS against industry standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the principles of website design
- describe hypertext transfer protocol (HTTP) protocol and its application to CSS
- outline and apply, hypertext markup language (HTML) and extensible hypertext markup language (XHTML)
- outline CSS rules and how they affect document styling, and layout
- explain World Wide Web Consortium (W3C) standards, as they apply to website design
- identify and apply, techniques to correct browser incompatibilities.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a computer


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- an aesthetic presentation brief
- HTML documents to have CSS applied to them
- the internet to validate the CSS against the W3C
- a variety of browsers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB507 Customise a complex ICT content management system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to create, and customise, an information and communications technology (ICT) content management system (CMS) powered website using an open source, to meet client requirements.

It applies to individuals working as web developers who have a detailed knowledge of markup languages and their associated standards, and are proficient in server-side language and security techniques. Individuals in this role also have high-level understanding of server functionality.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse the specifications and requirements | 1.1 Determine the required functionality of the website, as per the client requirements<br>1.2 Determine the appropriate server-side language and hosting environment |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Determine additional functionality that the CMS will not be able to handle 'out of the box'<br>1.4 Determine the functional requirements of the client's additional functionality<br>1.5 Determine any pre-existing restraints that need to be considered when developing the website solution |
| 2. Develop customisation | 2.1 Plan and outline, the requirements of the additional functionality<br>2.2 Create and develop plug-in, extension or new functionality to the CMS to meet client requirements |
| 3. Create a CMS powered website | 3.1 Install and configure, the chosen content management system<br>3.2 Install and integrate, the new CMS functionality |
| 4. Validate and evaluate | 4.1 Validate the final website markup against the current website standards<br>4.2 Validate CMS performance in different browsers, checking compatibility and core CMS functionality<br>4.3 Validate the developed additional functionality against the client requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 3.1, 3.2, 4.3 | • Critically analyses complex specifications, computer program manuals, and other documentation from a variety of sources and, consolidates information, to determine requirements |
| Writing | 2.1, 2.2, 3.1, 3.2 | • Prepares documentation expressing ideas, explores complex issues and is constructed logically, succinctly and accurately<br>• Writes and edits computer code, and technical data, to ensure syntax and accuracy |
| Oral | 1.1, 4.3 | • Uses listening and questioning techniques to determine client requirements, and clearly articulates ideas and |


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| | | |
|---|---|---|
| Communication | | solutions, using specific and relevant language suitable to the audience |
| Navigate the world of work | 4.1 | • Takes full responsibility for following policies, procedures and industry standards |
| Get the work done | 1.1-1.5, 2.1, 3.1, 3.2, 4.1-4.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies and applications, to manage and manipulate data, and to communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB507 Customise a complex ICT content management system | ICAWEB507A Customise a complex IT content management system | Updated to meet Standards for Training Packages.<br><br>Minor edit to the title. | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB507 Customise a complex ICT content management system

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- create a content management system (CMS) powered website, using an open source with additional custom functionality that is not available ‘out of the box’, that meets client requirements
- perform basic content manipulation tasks in commonly used browsers
- evaluate content management additional functionality against current programming and security standards
- customise functionality into a pre-existing core CMS, to fulfil client requirements by programming
- validate the front-end code markup against standards set by the World Wide Web Consortium (W3C).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- analyse and describe, a range of content management systems and their respective functionality
- explain markup language and their associated standards
- outline server functionality in relation to the client and business requirements
- describe and apply, server-side language and security techniques
- explain the importance of web accessibility.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- the client requirements, and content
- a text editor
- a range of browsers
- the internet for research, validation of code and programming documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB508 Develop website information architecture

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop information architecture for a complex website that meets current, and future, business requirements.

It applies to individuals working as highly skilled web developers and designers who are responsible for the navigation and hierarchy of a websites. They liaise with clients to adapt e-business into their corporate strategy, have high-level knowledge of technical languages and design principles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify content needs | 1.1 Identify the strategic intent of the website from the business requirements and client expectations<br>1.2 Develop information requirements based on the website's intent, intended audiences, types of client interactions, and the long and short-term goals for the site<br>1.3 Identify the required information, and group into business |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | schemes related to the business structure<br>1.4 Determine the content requirements for each process<br>1.5 Identify any security access requirements |
| 2. Plan the content structure | 2.1 Cluster and document the information in related topics<br>2.2 Develop a hierarchy and site map of the information<br>2.3 Check data to confirm the sequence of hierarchy<br>2.4 Ensure that labels are clear, consistent, coherent and relatively intuitive for the client to access |
| 3. Develop the navigation system | 3.1 Build a navigation system for the overall website, based on the business requirements<br>3.2 Ensure ease of navigation on the site, and provide different ways of searching, while providing feedback to the client<br>3.3 Ensure that navigation is accessible |
| 4. Test and sign off | 4.1 Construct the prototype of the information architecture design<br>4.2 Arrange for a subset of the client to test the prototype for usability, and to determine if the architecture meets client expectations<br>4.3 Ensure that the site content will format in the business and client technical environment<br>4.4 Adjust the architecture based on client feedback<br>4.5 Sign off the prototype, and confirm that current and future business requirements are met |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1, 2.3, 2.4, 3.1, 3.2, 4.4, 4.5 | • Reads and interprets specifications, computer technical data, and other documentation from a variety of sources, and consolidates information to determine requirements |
| Writing | 1.2, 2.1, 2.2, 2.4, | • Develops clear and well-organised technical and |


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| | | |
|---|---|---|
| | 3.1, 3.3, 4.1, 4.2, 4.4, 4.5 | online material, for specific audiences using the appropriate language to convey explicit information<br>• Prepares correspondence using clear language, correct spelling and terminology, and accuracy of information |
| Oral Communication | 1.1, 1.5, 3.2, 4.4 | • Articulates clearly using specific and relevant language, suitable to the audience to convey requirements, and listening, and questioning techniques to confirm understanding |
| Interact with others | 2.4, 3.3, 4.2 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers, in a range of work contexts |
| Get the work done | 1.2, 1.3, 1.5, 2.3, 3.1, 4.1, 4.2, 4.3, 4.5 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies, and applications, to manage and manipulate data, and communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB508 Develop website information architecture | ICAWEB508A Develop website information architecture | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB508 Develop website information architecture

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the strategic business requirements for the website
- develop and design, the information architecture for a complex website
- develop a site map, outlining the navigation hierarchy of a complex website
- test the access path to all sections of the website, and obtain client approval.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe how e-business sites fit into a corporate strategy
- outline the importance of client and business liaison
- summarise the purpose and function of cascading style sheets (CSS)
- describe the use of hypertext markup language (HTML), extensible hypertext markup language (XHTML) and hypertext transfer protocol (HTTP), in web design
- outline the implications of technology connectivity and documentation of technical specifications
- summarise World Wide Web Consortium (W3C) standards
- explain the website architecture and business process design, and the linkages between processes
- outline the importance of website accessibility.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a web server
- the requirement specifications
- an integrated development environment (IDE), capable of creating web pages and server-side code
- current web development technology.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB509 Use site server tools for transaction management

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to use site server tools to build, host, track, and monitor transactions on an e-business site.

It applies to individuals who work in a web environment and who are responsible for using site server tools to maintain the integrity of an e-business site, and have a detailed technical knowledge, and highly-developed analysis and interpretation skills.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Confirm and document the task requirements | 1.1 Confirm task requirements, features and functionality of the site with the client, as required<br>1.2 Confirm the platform or software related to the business systems<br>1.3 Confirm the integration requirements of site with client<br>1.4 Confirm standards relevant to the task and the site functionality |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Document the current and proposed configuration<br>1.6 Document and validate client task requirements, performance criteria and scope of work with the client<br>1.7 Confirm the available resources and budget with the client |
| 2. Select the tools | 2.1 Identify relevant site server tools with reference to requirements<br>2.2 Review and evaluate the tools with reference to the task requirements and the required site functionality<br>2.3 Load and configure the server tools according to the vendor guidelines and client requirements<br>2.4 Use server tools to test the equipment |
| 3. Use the tools | 3.1 Use server tools to maintain or update relevant functionality<br>3.2 Coordinate and implement the procedures<br>3.3 Use server tools, according to the vendor guidelines to achieve the relevant task requirements |
| 4. Review the server tools and task requirements | 4.1 Monitor, analyse and evaluate the organisational procedures<br>4.2 Review the site server configuration related to client task requirements and make adjustments to the configuration<br>4.3 Review the server tools, according to the client task requirements<br>4.4 Use site-analysis software to validate server outcomes<br>4.5 Create and use reports, and other documentation, for the purposes of record keeping and auditing |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1, 2.2, 2.3, 3.2, 3.3, 4.1, 4.2, 4.3 | • Critically analyses complex documentation from a variety of sources, and consolidates information, relating to specific criteria to determine the requirements |


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| | | |
|---|---|---|
| Writing | 1.1, 1.3, 1.5, 1.6, 1.7, 3.1, 4.2, 4.5 | • Develops clear and well-organised reports and related workplace documentation, and correspondence, for specific audiences, using the appropriate language to convey explicit information |
| Oral Communication | 1.1, 1.3, 1.6, 1.7 | • Articulates complex information clearly, using specific and relevant language suitable to the audience, to convey requirements, and uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.7 | • Accommodates business requirements by interpreting budgetary constraints, and undertakes mathematical calculations with reference to the available resources |
| Navigate the world of work | 1.4, 3.2, 4.1 | • Takes full responsibility for following policies, procedures, legislative requirements and industry standards<br>• Modifies or develops organisational policies and procedures, to comply with industry standards and organisation goals |
| Interact with others | 1.1, 1.3, 1.6, 1.7, 3.2, 4.3 | • Selects, implements and seeks to improve protocols governing communications, to clients and co-workers, in a range of work contexts<br>• Collaborates with others, sharing information in order to build strong relationships |
| Get the work done | 1.1-1.4, 1.6, 2.1-2.4, 3.1-3.3, 4.1, 4.2, 4.4 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews, and changes them, to meet new demands and priorities<br>• Applies systematic and analytical decision-making processes, for complex and non-routine situations<br>• Uses and investigates new digital technologies and applications, to manage and manipulate data, and to communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB509 | ICAWEB509A | Updated to | Equivalent |


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| Code and title<br>current version | Code and title<br>previous version | Comments | Equivalence status |
|---|---|---|---|
| Use site server tools for transaction management | Use site server tools for transaction management | meet Standards for Training Packages | unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB509 Use site server tools for transaction management

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- confirm and document the clients requirements
- select and use the appropriate website server tools, to maintain the expected business performance and technical standards, in an e-business environment
- build, maintain and monitor the transactions on an e-business site
- review the procedures and task requirements, for an e-business site.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- select and describe, the devices required for a business site
- summarise functions and features of tools relevant to:
- firewalls and proxy servers as required
- hypertext transfer protocol (HTTP) servers
- search engines
- outline the security measures required for the site
- explain the tools and products required for site construction
- summarise the role of protocols related to the features and to functionality
- explain the site-building considerations, in relation to a new versus an established business.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- the server hardware
- site server tools currently used in industry
- an existing e-business website
- the business expectations brief
- the appropriate standards and current legislation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB510 Analyse information and assign meta tags

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to analyse material and assign meta tags to ensure the accurate and consistent retrieval of information by users.

It applies to individuals in a range of information and communications technology (ICT) areas that use various techniques and software to create, update and enhance meta tags according to industry guidelines and client specifications.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify the requirements for meta tags | 1.1 Identify the scope and uses of material from the previous and current business, and the stakeholder requirements process<br>1.2 Determine the appropriate type and structure of meta tags, taking into account identified client needs, requirements and expectations<br>1.3 Identify and incorporate, new or contemporary client requirements, and expectations |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Analyse the material | 2.1 Use the analysis and the description tools, standards, precedents and techniques that are appropriate, given the nature of the material<br>2.2 Ensure that the analysis of the subject content of the material reflects expected client usage requirements<br>2.3 Clearly distinguish significant information from minor information<br>2.4 Ensure that the concepts derived from the analysis of the material are appropriate to the business requirements, and the intended use |
| 3. Create meta tags | 3.1 Develop meta tags using appropriate software<br>3.2 Ensure that meta tags represent the concepts appropriately, depending on the overall purpose, and intended use, of the material<br>3.3 Ensure that the meta tags conform to general conventions and to the business rules<br>3.4 Develop the reference structure of descriptors, where required, to display relationships to assist clients<br>3.5 Enhance the meta tags to meet identified client needs |
| 4. Test and monitor meta tagging practices and procedures | 4.1 Test meta tagging of material and make changes, if necessary<br>4.2 Regularly review meta tagging practices and procedures, to ensure that client needs are being met<br>4.3 Regularly review industry developments in meta tagging and take the appropriate action to improve practices<br>4.4 Check meta tags regularly for internal consistency and compliance with the established structure, rules and authorities |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.4, 3.2, 3.5, 4.2-4.4 | • Reads and interprets plans, specifications, computer program data, and other documentation from a variety of sources, and consolidates information to determine |


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| | | |
|---|---|---|
| | | requirements |
| Writing | 3.1, 3.4, 3.5, 4.1, 4.3 | • Prepares documentation expressing ideas, explores complex issues, and is constructed logically, succinctly and accurately<br>• Writes and edits, computer code and technical data, ensuring the correct syntax and accuracy |
| Navigate the world of work | 3.3, 4.2, 4.3, 4.4 | • Takes full responsibility for following policies, procedures, industry standards and legislative requirements, and identifies the organisational implications of new regulations |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.2-3.4, 4.1, 4.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews, and changes them to meet new demands and priorities<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Uses and investigates new digital technologies and applications, to manage and manipulate data, and to communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB510 Analyse information and assign meta tags | ICAWEB510A Analyse information and assign meta-tags | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB510 Analyse information and assign meta tags

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and identify the meta tag requirements
- use software to create and test meta tags
- update meta tags in line with the client needs and/or industry developments.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the business conventions and rules for applying meta tags
- summarise the client business domain
- outline data modelling
- explain database management system (DBMS) fundamentals
- summarise the decision support systems
- summarise document indexing and search engines
- outline the functions and features of databases
- summarise metadata standards, including Dublin Core and simple hypertext markup language (HTML) ontology extensions
- describe how reference structure of descriptors can assist clients.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:


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- business and client information and materials
- the metadata software
- the project-related documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB511 Implement quality assurance process for websites

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop and conduct planned and systematic actions required to provide confidence that websites conform to relevant standards and fulfil client expectations.

It applies to individuals in the web field of work that use highly-developed communication, analysis and technical skills to determine intelligent strategies for ongoing website improvement.

Check the Implementation Guide Companion Volume for details about licensing, legislative or certification requirements.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish standards | 1.1 Identify appropriate regulatory, accessibility, industry and organisational compliance standards<br>1.2 Develop, quantify, document and disseminate measurable performance standards, from those standards, for all documents<br>1.3 Establish centralised, distributed or combined quality assurance methodology |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Determine specification from which website was developed<br>1.5 Establish guidelines for controlling, updating and loading new content on to website |
| 2. Apply standards and track performance | 2.1 Apply all processes as integral part of website development process<br>2.2 Validate site, updates and new content against performance standards, using wide variety of browsers and tools<br>2.3 Document and disseminate results<br>2.4 Provide feedback to web authors, users and administrators on routine and regular basis |
| 3. Develop and apply continuous improvement process | 3.1 Provide performance standards feedback to developers, maintainers and administrators<br>3.2 Identify below-average or unacceptable performance standards and apply appropriate measures to improve performance<br>3.3 Provide channels for interaction, feedback and suggestions from site users, administrators, developers and maintainers<br>3.4 Respond appropriately to interaction, feedback and suggestions<br>3.5 Develop procedures to identify whether feedback and suggestions are applied and acted on<br>3.6 Conduct regular benchmark reviews based on improved performance and disseminate revised benchmarks |
| 4. Document quality assurance practices | 4.1 Document quality assurance procedures and processes<br>4.2 Document quality assurance results<br>4.3 Document and control changes to procedures, processes and results |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 2.1, 2.2, 3.2, 3.6 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |


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| | | |
|---|---|---|
| Writing | 1.2, 1.3, 1.5, 2.3, 2.4, 3.1, 3.3-3.6, 4.1, 4.2, 4.3 | • Develops procedural material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations<br>• Accurately records information and prepares correspondence and documentation using clear language and organisational formats and protocols |
| Oral Communication | 2.3, 2.4, 3.1, 3.2, 3.3, 3.6 | • Articulates requirements and strategies via an open line of communication using language appropriate to audience and environment |
| Numeracy | 1.2 | • Analyses data to quantify response times and time lines when determining performance standards |
| Navigate the world of work | 1.1, 1.2, 1.5, 2.1, 3.2, 4.1, 4.3 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies the organisational implications of new legislation or regulation<br>• Modifies or develops organisational policies and procedures to comply with legislative requirements and organisational goals<br>• Seeks to improve policies and procedures to better meet organisational goals |
| Interact with others | 1.2, 2.3, 2.4, 3.1, 3.3, 3.4, 3.6 | • Selects, implements and seeks to improve protocols governing communications to clients and co-workers in a range of work contexts<br>• Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships<br>• Elicits feedback and provides feedback to others |
| Get the work done | 1.3-1.5, 2.2, 2.3, 3.4-3.6 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules, and reviews and changes them to meet new demands and priorities<br>• Applies systematic and analytical decision-making processes for complex and non-routine situations<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation and formal analytical thinking |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB511 Implement quality assurance process for websites | ICAWEB511A Implement quality assurance process for websites | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB511 Implement quality assurance process for websites

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify, establish and implement appropriate quality assurance standards for the website
- evaluate existing processes and procedures
- develop and implement a continuous improvement process
- develop quantitative standards and performance benchmarks
- document quality assurance standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise business process design, and customer and business liaison
- outline copyright and intellectual property relating to websites
- explain provisions of privacy legislation relating to websites
- clarify website accessibility and equity legislation
- outline website architecture and website security
- explain workload metrics and technical performance measurement.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- web servers


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- an e-business website
- analysis software
- automatic testing software
- documentation for appropriate regulatory, industry compliance and accessibility standards.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB512 Administer business websites and servers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to lead a strategic review, prepare a security plan and prepare for future growth of business websites and servers.

It applies to individuals working as multimedia developers, web strategists or project managers who provide technical advice, guidance and leadership when resolving specified problems. In some cases, they may have responsibility for the work output of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Maintain business website and contents | 1.1 Establish personnel policy and procedures for managing access and changes to aspects of business website<br>1.2 Design and start training program for teaching staff how to use procedures and policies as well as making changes to business website<br>1.3 Evaluate and test site-analysis software on non-live server to verify features and functions are safe for use on live server |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Generate site summary reports in line with organisational quality management program or guidelines<br>1.5 Review reports found to have generated security flaws<br>1.6 Check links for functionality and ongoing relevance<br>1.7 Modify web pages according to changing business requirements and analysis of site summary report<br>1.8 Maintain and debug database information according to site and information requirements |
| 2. Maintain business security of website | 2.1 Establish security response procedure to control information placed on business website by developers, designers and end users<br>2.2 Develop security plan<br>2.3 Test site security according to organisational requirements of security plan<br>2.4 Maintain site security using information from security vendors and technical media outlets |
| 3. Monitor business website performance | 3.1 Select server analysis tools with reference to organisational requirements and range of functionalities requiring monitoring<br>3.2 Determine business website load metrics and performance indicators in line with organisational requirements<br>3.3 Measure business website server performance with server analysis tools<br>3.4 Identify and document business options for performance improvement<br>3.5 Submit website server performance reports to client |
| 4. Undertake capacity planning | 4.1 Determine future peak volumes by measuring page usage and volume access<br>4.2 Develop upgrade program to deal with increasing load and performance issues<br>4.3 Set performance benchmarks to take into consideration possible future scenarios for each load metric<br>4.4 Determine options for upgrade path for equipment needs based on research and business website performance growth forecasting |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2-1.8, 2.3, 2.4, 3.1, 3.2, 3.4, 4.4 | • Critically analyses complex documentation from a variety of sources and consolidates information relating to specific criteria to determine requirements |
| Writing | 1.1, 1.2, 1.4, 1.7, 1.8, 2.1, 2.2, 3.4, 3.5, 4.2, 4.3 | • Accurately records and completes organisational documents and correspondence using clear language and correct spelling, grammar and terminology<br>• Writes, edits and proofreads documents to ensure clarity of meaning, and accuracy and consistency of information |
| Oral Communication | 1.2, 3.5 | • Facilitates training programs for staff by conveying requirements using clear and specific language<br>• Uses collaborative and inclusive techniques including active listening and questioning and reading of verbal and non-verbal signals to convey and clarify information and to confirm understanding |
| Numeracy | 3.2, 3.3, 4.1, 4.3 | • Performs mathematical calculations to check, analyse and confirm results of system tests |
| Navigate the world of work | 1.1, 1.4, 2.1, 3.1 | • Takes full responsibility for following policies, procedures and legislative requirements, and identifies organisational implications of new legislation or regulation<br>• Contributes to roles and responsibilities of self and others<br>• Modifies or develops organisational policies and procedures to comply with legislative requirements and organisational goals<br>• Seeks to improve policies and procedures to better meet organisational goals |
| Interact with others | 3.5 | • Implements strategies for a diverse range of colleagues and clients to build rapport and foster strong relationships |
| Get the work done | 1.1-1.3, 1.6-1.8, 2.1-2.4, 3.1-3.3, 4.2-4.4 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others and taking into account capabilities, efficiencies and effectiveness<br>• Monitors progress of plans and schedules and reviews and changes them to meet new demands and priorities<br>• Applies systematic and analytical decision-making |


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| | | |
|---|---|---|
| | | processes for complex and non-routine situations<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes through consultation and formal analytical thinking |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB512 Administer business websites and servers | ICAWEB512A Administer business websites and servers | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB512 Administer business websites and servers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- evaluate and test site-analysis software
- test and maintain website security
- design and implement a staff website maintenance training program
- monitor website performance
- develop an upgrade program to cater for business website performance growth
- prepare documentation for:
  - security plan
  - training program
  - website server performance reports
- upgrade program.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the notion of bottlenecks in data flow and methods for correction
- outline electronic commerce modelling language (ECML)
- summarise queuing systems
- explain standard generalised markup language (SGML) and associated standards
- summarise user request classes
- outline the principles of website architecture
- summarise website security issues
- explain workload metrics.


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## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- site servers and web servers where tasks may be performed
- a business website
- site server and analysis software currently used in industry
- requirements and business planning documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB515 Implement and use web services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to support web services for building distributed applications.

It applies to individuals working as software developers who have specialised skills in the consumption of web services, related communications protocols and the associated extensible markup language (XML) technologies, used in web services.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Use XML to provide information | 1.1 Create XML data structures from various data sources<br>1.2 Manipulate XML data structures, using a common application programming interface (API)<br>1.3 Use namespaces to scope elements from multiple XML documents<br>1.4 Validate XML data structures, using a schema |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Map, and transform, an XML document from one schema to another |
| 2. Use WSDL to promote a web service | 2.1 Understand the purpose of the web service description language (WSDL)<br>2.2 Identify the three main elements that comprise WSDL<br>2.3 Build a WSDL file<br>2.4 Provide web access to a WSDL file, via a uniform resource locator (URL) |
| 3. Use UDDI to locate and retrieve information about a public web service | 3.1 Identify the purpose of universal description, discovery and integration (UDDI)<br>3.2 Understand the differences between public, extra-enterprise and intra-enterprise, UDDI registry deployments<br>3.3 Locate, and retrieve information, about a public web service using UDDI<br>3.4 Identify the relationship between WSDL and UDDI |
| 4. Access the web services using SOAP | 4.1 Identify the purpose of simple object access protocol (SOAP)<br>4.2 Determine the relationship between UDDI and SOAP<br>4.3 Identify the basic structure and processing of a SOAP message<br>4.4 Retrieve an XML document from a public web service, using SOAP |
| 5. Implement a web service | 5.1 Outline a basic web service architecture<br>5.2 Implement, test and publish a web service<br>5.3 Incorporate and test a web service into an application |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3-1.5, 2.2, 3.1, 3.3, 3.4, 4.1-4.3 | • Reads and interprets specifications, computer program data, and other documentation, from a variety of sources, and consolidates information to determine requirements |


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| | | |
|---|---|---|
| Writing | 1.1-1.5, 2.3, 2.4, 4.3, 4.4, 5.1, 5.2 | • Develops clear and well-organised specifications, and related workplace documentation, for specific audiences using the appropriate language to convey explicit information |
| Navigate the world of work | 2.1, 3.2, 4.2 | • Ensures that knowledge of computing technologies is kept up to date in order to provide, and carry out, activities |
| Get the work done | 1.2, 2.1, 2.4, 3.3, 4.4, 5.1-5.3 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others, and taking into account capabilities, efficiencies and effectiveness<br>• Makes critical decisions quickly and intuitively in complex situations, taking into consideration a range of variables, including the outcomes of previous decisions<br>• Applies systematic and analytical decision-making processes, for complex and non-routine situations<br>• Uses and investigates new digital technologies and applications, to manage and manipulate data, and to communicate effectively with others, in a secure and stable digital environment |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWEB515 Implement and use web services | ICAWEB515A Implement and use web services | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB515 Implement and use web services

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- transform data from relational or other native data sources, into an extensible markup language (XML)
- validate an XML document, using a predefined schema
- provide access to the business functionality via a web service description language (WSDL) file
- locate a public web service business function, and include it in a website, using universal description, discovery and integration (UDDI), and a simple object access protocol (SOAP)
- implement a web service according to the business requirements, specifications, and industry standards.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise integrated development environments
- summarise web development technologies
- outline the web service architecture
- describe the importance of XML language and data structures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- the web service business requirement specifications
- industry standards published by the World Wide Web Consortium (W3C)
- platform-specific documentation and help files, describing the syntax and use of proprietary technologies
- a simulated development environment, incorporating the following elements:
  - a relational database server
  - the integrated development environment (IDE), including related frameworks, APIs and associated proprietary classes, required to implement web services and their enabling technologies
  - a web server
  - web browsers
  - XML editors
  - XPath testing utilities.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWEB516 Research and apply emerging web technology trends

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to keep up-to-date and apply emerging web technologies.

It applies to individuals who have an understanding of internet technology, are highly skilled technicians, and have high-level knowledge of the principles of analysis and design.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Web

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify emerging web technology trends and their uses | 1.1 Review new developments in web technology<br>1.2 Identify the appropriate web technology to meet the needs of the web application |
| 2. Implement new web technology trends in a portfolio | 2.1 Create the code to apply the web technology<br>2.2 Test the web application in a variety of browsers, and rectify any problems that arise |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2 | • Critically analyses complex information from a variety of sources, and consolidates information, relating to specific criteria to determine the requirements |
| Writing | 2.1 | • Writes and edits, computer code and technical data, ensuring the correct syntax and accuracy |
| Get the work done | 1.2, 2.2 | • Accepts responsibility for planning and sequencing complex tasks and workload, negotiating key aspects with others while taking into account capabilities, efficiencies and effectiveness<br>• Investigates new and innovative ideas as a means to improve work practices and processes<br>• Uses and investigates new digital technologies and applications, to manage and manipulate data, and to communicate effectively with others in a secure, and stable, digital environment |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWEB516 Research and apply emerging web technology trends | ICAWEB516A Research and apply emerging web technology trends | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWEB516 Research and apply emerging web technology trends

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- research, investigate, and apply emerging web technology trends to a web application.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of the internet and the technologies that underpin its existence
- summarise the key principles of analysis and design
- outline programming control structures and object-oriented programming
- explain web programming concepts, including:
  - the hypertext transfer protocol (HTTP)
  - stateless programming
  - session management
  - authentication and web security
  - client-side programming
- explain the latest web technology trends, and their application, to a client
- evaluate a web application, using trends in web technology
- identify the sources of information regarding new and emerging, trends and technologies.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the website technologies field of work, and include access to:

- a development environment
- a server
- a database server
- the internet
- browsers.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWHS201 Provide telecommunications services safely on roofs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge to engage in safe work practices when installing or repairing telecommunications equipment on roof structures.

It applies to individuals employed as technicians and installers who are required to safely install or repair telecommunications equipment on roof structures. It includes planning, risk assessment and implementing control measures while undertaking telecommunications installation or repairs.

No licensing, legislative or certification requirements apply to this unit at the time of publication

## Unit Sector

Telecommunications – Occupational Health and Safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Follow workplace procedures for hazard identification and risk control | 1.1 Notify customer and arrange site access<br>1.2 Recognise and report hazards in the work area to designated personnel according to workplace procedures<br>1.3 Follow work health and safety (WHS) legislative requirements, workplace procedures and work instructions to control risks |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Comply with safe work practices for working safely on roofs and adhere to workplace environmental requirements throughout the work<br>1.5 Implement duty of care requirements to provide a safe working environment<br>1.6 Complete job safety analysis (JSA) sheets according to work requirements, including hazard identification and risk assessment<br>1.7 Use and maintain personal protective equipment and personal safety equipment according to work requirements and apply fall protection and personal safety requirements according to regulatory requirements |
| 2. Prepare for work on rooftop | 2.1 Assess scope of work according to workplace procedures, relevant legislation, codes, regulations and standards and relevant job information details<br>2.2 Inspect site to determine layout and equipment requirements according to work order<br>2.3 Select materials, tools and equipment, including personal protective equipment, and check for serviceability<br>2.4 Inspect and install fall protection and perimeter protection equipment, ensuring adequacy for work and conformance to regulatory requirements<br>2.5 Install roof safety system according to workplace and regulatory requirements<br>2.6 Select and install appropriate signage and barricades |
| 3. Perform telecommunications work on rooftop | 3.1 Inspect access from ground to work area ensuring it is safe and according to regulatory requirements<br>3.2 Estimate total weight of material to be raised to rooftop to carry out the work<br>3.3 Determine and use the safest lifting method to bring materials and equipment to rooftop according to regulatory requirements.<br>3.4 Secure test equipment, hardware and tools safely on rooftop and distribute weight to eliminate risk of damage to roof cover<br>3.5 Inspect safety system periodically for compliance with regulations according to workplace procedures and report faults<br>3.6 Monitor risk control measures to ensure they are effective and appropriate to the task and work environment<br>3.7 Reassess risk control measures as required, according to changed work practices or site conditions and make alterations within scope of authority |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 4. Complete activities and documentations | 4.1 Dismantle safety system according to prescribed sequence and remove from worksite<br>4.2 Clear work area and dispose of materials or recycle according to state and territory legislation and workplace procedures<br>4.3 Clean, check and maintain tools and equipment according to manufacturer's recommendations and workplace procedures<br>4.4 Complete documentation according to workplace requirements and notify customer for sign off |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.6 | • Interprets textual information from sources to identify relevant safety signs |
| Writing | 1.2, 1.6, 4.4 | • Prepares documentation and correspondence using clear language, correct spelling and terminology in the preparation of reports, JSA, SWMS and other reports |
| Oral Communication | 1.1, 1.2, 4.4 | • Uses clear language and concepts, and tone and pace appropriate for the audience and purpose |
| Numeracy | 3.2 | • Performs mathematical calculations to estimate, interpret and confirm safe roof loading |
| Navigate the world of work | 1.3-1.5, 1.7, 2.1, 2.4, 2.5, 3.1, 3.3, 3.6, 3.7, 4.1-4.3 | • Complies with explicit policies and procedures.<br>• Explores and implements, where identified, the implicit expectations of policies and procedures |
| Interact with others | 1.1, 1.2, 4.4 | • Identifies and takes steps to follow accepted communication practices and protocols<br>• Uses a limited range of accepted practices for communicating in a work environment |
| Get the work done | 1.1, 1.2, 1.4-1.7, 2.1-2.6, 3.1-3.4, 3.6, 3.7, 4.1-4.4 | • Plans and implements routine tasks and workload making limited decisions on sequencing, timing and collaboration, and seeks assistance in setting priorities<br>• Responds to predictable routine problems, |


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| | | |
|---|---|---|
| | | implementing standard or logical solutions |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWHS201Provide telecommunications services safely on roofs | ICTOHS2080A Provide telecommunications services safely on roofs | Updated to meet standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWHS201 Provide telecommunications services safely on roofs

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- locate, interpret and apply relevant information, standards and specifications for working safely on roofs
- apply safety requirements throughout the work sequence, including the use of personal protective equipment
- provide for erection, maintenance and dismantling of the fall and perimeter protection requirements for the site
- carry out a risk assessment ensuring:
  - correct identification of risks and safety requirements
  - correct selection and use of appropriate processes, tools and equipment
  - completion of all work to specification
  - compliance with regulations, standards and organisational quality procedures and processes
  - open communication and the ability to work effectively and safely with others.

Note: As a minimum, given the plans and specifications for the roof working area of a corner, extending at least 4 metres in either direction and greater than 1.8 m high, incorporating harnesses and harness fixing points for safe personal and stores access to the roof, stores and equipment locations

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the purpose of job safety analysis (JSA) and safe work method statements
- identify the various hazards associated with working on roofs
- identify levels of responsibility when operating in a hazardous situation
- specify workplace procedures relating to working on roofs


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- describe the hierarchy of control in a workplace health and safety environment in the context of:
  - hazards
  - risk
  - control
- list and describe common workplace practices that impact health and safety
- explain ‘duty of care’ and its relevance to workplace health and safety
- list and describe the use of safety personal protective equipment (PPE) and equipment used for working on roofs
- describe safe lifting methods
- explain reporting methods for safe work practices
- explain the nature of work undertaken on roofs
- list and apply processes of providing for safe working practices
- identify and comply with relevant statutory and regulatory authority requirements related to working safely on roofs
- identify and use roof safety equipment and systems and considerations to facilitate working safely on roofs
- apply SI system of measurement for measurement.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Occupational Health and Safety field of work and include access to:

- site on roof where operations may be conducted
- induction procedure and requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe working practices and addressing hazards and emergencies
- relevant regulations, standards specifications and manuals, including industry related systems information.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWHS202 Work safely in a radio frequency electromagnetic radiation environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the performance outcomes, skills and knowledge required to use organisational risk control procedures when working with a risk of exposure to radio frequency (RF) electromagnetic radiation (EMR) hazards.

The unit applies to site maintenance staff, technicians and installers who install or maintain equipment at installations that are sources of RF EMR.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – work health and safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare to work in RF EMR environment | 1.1 Identify characteristics of RF EMR and situations that can lead to exposure to RF EMR hazards<br>1.2 Identify potential effects of RF EMR on human body and contributing factors that affect it<br>1.3 Research relevant regulations and standards that apply to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | working with and controlling RF EMR hazards<br>1.4 Obtain and review RF EMR information required for work environment |
| 2. Assess RF EMR risks | 2.1 Assess potential RF EMR hazards in telecommunications work environment<br>2.2 Estimate likely field strength pattern of potential RF EMR hazard |
| 3. Control RF EMR risks | 3.1 Explain typical organisational controls to manage and control identified RF EMR hazards<br>3.2 Choose and apply appropriate RF EMR controls<br>3.3 Report EMR exposure that exceeds acceptable levels according to organisational work health and safety (WHS) requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.1, 2.2, 3.1 | • Uses a number of reading strategies to identify and interpret relevant information within familiar text types |
| Writing | 3.3 | • Prepares organisational WHS documentation using clear language, correct spelling and terminology |
| Oral Communication | 3.3 | • Uses clear language and concepts, and tone and pace appropriate for the audience and purpose |
| Numeracy | 2.2 | • Performs mathematical calculations to estimate, interpret and compare RF signal strength |
| Navigate the world of work | 1.3, 1.4, 3.1-3.3 | • Understands responsibility to comply with legal and regulatory requirements |
| Interact with others | 3.3 | • Identifies and takes steps to follow accepted communication practices and protocols |
| Get the work done | 1.1-1.4, 2.1, 3.1, 3.2 | • Follows clearly defined instructions and sequencing, and monitors own progress for the task, seeking assistance when necessary |


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| | | |
|---|---|---|
| | | • Makes low-impact decisions within familiar situations, based on a range of predefined or routine solutions<br>• Responds to predictable routine problems and implements standard or logical solutions |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWHS202 Work safely in a radio frequency electromagnetic radiation environment | ICTWHS2081A Work safely in a radio frequency electromagnetic radiation environment | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWHS202 Work safely in a radio frequency electromagnetic radiation environment

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- identify the effect of radio frequency (RF) electromagnetic radiation (EMR) on the human body
- locate, interpret and apply relevant information, standards and specifications for working safely with RF EMR
- identify organisational controls for exposure to RF EMR, including lock-out procedures and the use of personal protective equipment
- identify risks and safety requirements and record in a job safety analysis (JSA) sheet or safe work method statement (SWMS) or similar record sheet
- select and use appropriate processes, tools and equipment to minimise RF EMR risk
- comply with regulations, standards and organisational procedures and processes
- communicate and work effectively and safely with others.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the characteristics of RF EMR and sources of RF EMR, and state their effect on the human body
- describe the nature of work undertaken close to sources of RF EMR and identify the associated risks and hazards
- identify and summarise the regulations and standards that govern the generation of RF and EMR
- identify the relevant statutory and regulatory requirements relating to working safely with RF EMR
- describe the organisational control processes for managing exposure to RF EMR.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – work health and safety field of work and include access to:

- induction procedures and requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- relevant regulations, standards, specifications and manuals, including industry related systems information.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWHS203 Work safely near power infrastructure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge to conduct telecommunications operations near substantial safety hazards. It includes safety hazard management at heights near electrical distribution infrastructure, radiation devices or other services in confined spaces.

It applies to field officers who work with cables on elevated work platforms, in confined spaces and on roofs and other structures near power lines. It does NOT include work on public electricity assets.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – Occupational Health and Safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Conduct risk assessment | 1.1 Confirm work instructions with appropriate personnel and seek clarification if required<br>1.2 Select work health and safety (WHS) legislation, policy and procedures and technical standards relevant to the work and work site |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Assess risks from electrical, radiation, gas and other services in or adjacent to the worksite<br>1.4 Assess safety of the worksite, other services and support structures using appropriate monitoring equipment<br>1.5 Complete a job safety analysis (JSA) or similar risk assessment record listing potential safety hazards associated with site and work requirements, and report safety hazards to relevant personnel<br>1.6 Obtain and confirm permits from relevant authorities within scope of personal authority or seek assistance from appropriate authority<br>1.7 Assess potential emergency situations relevant to the site<br>1.8 Note earthing arrangements for telecommunications infrastructure and any other services that impinge on the worksite |
| 2. Develop hazard management plan | 2.1 Propose strategies to manage potential safety hazards<br>2.2 Communicate hazard management strategies and confirm with co-workers<br>2.3 Establish and confirm safety procedures to ensure management of emergency situations<br>2.4 Obtain safety equipment and personal protective equipment<br>2.5 Delineate safe work zones and limits of approach to other services<br>2.6 Arrange road safety and traffic control measures<br>2.7 Implement safe strategies for working at heights and in confined spaces |
| 3. Work safely | 3.1 Use safety equipment and clothing effectively<br>3.2 Use ladders, climbing or lifting equipment to work safely at heights<br>3.3 Operate hand and power tools safely at heights<br>3.4 Work within identified safety zones and approach limits<br>3.5 Comply with enterprise and industry earthing practices<br>3.6 Monitor and manage risks throughout work procedures<br>3.7 Apply emergency procedures in the event of an incident<br>3.8 Reinstate the worksite to ensure safety of telecommunications workers, the public and the telecommunications network |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.6 | • Reads and interprets documentation from a variety of sources and consolidates information to determine safety requirements |
| Writing | 1.5, 2.1, 2.3 | • Accurately records and completes organisational safety documents and correspondence using clear language and correct spelling, grammar and terminology |
| Oral Communication | 1.1, 1.5, 2.3 | • Uses clear language, concepts, tone and pace appropriate for the audience to communicate safety outcomes |
| Navigate the world of work | 1.2, 1.6, 2.7, 3.4-3.8 | • Understands rights and responsibilities and complies with legal and regulatory requirements<br>• Complies with explicit policies and procedures<br>• Explores and implements implicit expectations of policies and procedures |
| Interact with others | 1.1, 1.5, 2.3 | • Uses a limited range of accepted practices for communicating in a work environment |
| Get the work done | 1.2-1.4, 1.7, 1.8, 2.1, 2.3-2.7, 3.1-3.4, 3.8 | • Plans and implements routine tasks and workload making limited decisions on sequencing, timing and collaboration, seeks assistance in setting priorities<br>• Responds to predictable routine problems, implementing standard or logical solutions |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWHS203 Work safely near power infrastructure | ICTOHS2153B Work safely near power infrastructure | Updated to meet standards for Training Packages<br><br>Minor change to the | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | title | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWHS203 Work safely near power infrastructure

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of ability to:

- conduct a risk assessment for a telecommunications site near power infrastructure
- develop a simple hazard management plan
- assess the requirements for working at heights and working in confined spaces
- apply safety precautions while working at heights or in confined spaces near power infrastructure.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe appropriate electrical safety and technical knowledge relating to the type of work, operating plant or vehicle near power lines (safe system of work according to the relevant electrical regulations and Acts)
- identify environmental control processes:
  - disposal and handling of hazardous and dangerous substances
  - noise pollution
  - waste disposal
- identify main components of work health and safety (WHS) legislation, regulations and codes of practice that affect the work function
- identify and explain the principles of WHS including legislation and standards
- describe ways WHS is managed in the workplace, and activities required under WHS legislation, including:
  - hazard identification
  - hazards that exist in the workplace


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  - WHS instruction
  - preferred order of ways to control risks (known as the hierarchy of control)
  - risk assessment and control
  - sound knowledge of operating safely at heights
  - training and provision of WHS information
- identify workplace environmental and WHS procedures relevant to the work being undertaken, including:
  - designation of personnel responsible for WHS
  - requirement for employee participation in WHS management
  - standard meanings of WHS symbols found on signs and labels in the workplace
  - raising WHS issues
  - recognising and reporting on hazards
  - responding to accidents, fires and emergencies
  - work operations to control risks
- identify common road and pedestrian safety control measures appropriate to the worksite.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the Telecommunications – Occupational Health and Safety field of work and include access to:

- telecommunications site near power infrastructure
- relevant WHS legislation, regulations and codes of practice
- enterprise WHS policies and procedures
- personal protective equipment.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWHS204 Follow work health and safety and environmental policy and procedures

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to follow safe working practices and environmental policy in the management of a telecommunications workplace.

It applies to telecommunications staff working under supervision in a technical environment and includes school based workers, entry-level workers, trainees and apprentices, and field officers deploying broadband access networks using optical technologies and other work on live systems.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – work health and safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Identify work health and safety (WHS) legislative requirements | 1.1 Locate WHS legislative requirements relevant to own work, role and responsibilities<br>1.2 Explain own responsibilities in relation to duty of care<br>1.3 Identify the relationship between legislative requirements and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | safe work practices |
| 2 Identify construction hazards and control measures | 2.1 Identify basic principles of risk management<br>2.2 Identify common construction hazards<br>2.3 Identify measures for controlling hazards and risks |
| 3 Follow workplace procedures for hazard identification and risk control | 3.1 Recognise and report hazards in work area to designated personnel according to workplace procedures<br>3.2 Follow WHS legislative requirements, workplace procedures and work instructions to control risks<br>3.3 Comply with safe work practices<br>3.4 Implement duty of care requirements<br>3.5 Complete job safety analysis (JSA) sheets or safe work method statement (SWMS) according to work requirements, including hazard identification and risk assessment<br>3.6 Use and complete checks of personal protective equipment according to work requirements<br>3.7 Assess and test for harmful gases associated with workplace |
| 4 Follow safety requirements for working with optical fibre equipment | 4.1 Identify and use safe work practices when handling optical fibre, lasers and optical connectors according to the relevant Australian Standards<br>4.2 Identify and use safe working practices when handling and disposing of chemical waste |
| 5 Identify and implement WHS communication and reporting processes | 5.1 Apply WHS communication processes, information and documentation<br>5.2 Identify designated WHS personnel<br>5.3 Comply with safety signs and symbols<br>5.4 Identify procedures and relevant authorities for reporting emergencies, incidents and injuries |
| 6 Follow WHS incident response procedures | 6.1 Follow general procedures for responding to incidents and emergencies<br>6.2 Identify procedures for accessing first aid<br>6.3 Select and use relevant personal protective equipment<br>6.4 Explain and apply workplace procedures for fire safety |
| 7 Contribute to management of WHS | 7.1 Raise WHS issues with designated personnel according to workplace procedures and relevant WHS legislation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 7.2 Contribute to participative arrangements for WHS management in workplace, within organisational procedures and scope of responsibilities and competencies |
| 8 Contribute to management of workplace environmental issues | 8.1 Raise environmental issues with designated personnel according to workplace procedures and relevant environmental requirements and legislation<br>8.2 Contribute to participative arrangements for environmental management in workplace, within organisational procedures and scope of responsibilities and competencies<br>8.3 Record and report all WHS issues, risks and hazards to designated personnel |
| 9 Identify and respond appropriately to asbestos containing materials (ACM) hazards | 9.1 Identify asbestos containing materials (ACM) hazards or their likelihood<br>9.2 Respond to asbestos containing materials hazards or their likelihood<br>9.3 Report identified or suspected asbestos containing materials hazards to designated personnel according to workplace procedures |
| 10 Identify minor traffic management | 10.1 Assess traffic safety requirement of general location with respect to regulatory and enterprise requirements<br>10.2 Identify safe work zone around vehicle and work space using traffic cones and signs according to regulatory requirements<br>10.3 Identify changed traffic conditions and act in accordance |
| 11 Recognise and respond appropriately to confined space | 11.1 Identify confined space in accordance with regulatory or enterprise guidelines that can only be entered by personnel with specialist training<br>11.2 Refer identified confined space to appropriate personnel |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 4.1, 5.4, 6.1-6.4 | • Analyses and consolidates information and data from a range of sources, against |


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| | | |
|---|---|---|
| | | defined criteria and requirements, to identify safety requirements |
| Writing | 1.1, 3.1, 3.5, 7.1, 7.2, 8.1-8.3, 9.3, 11.2 | • Accurately records information and prepares documentation using clear language and organisational formats and protocols |
| Oral Communication | 1.1, 7.1, 7.2, 8.1-8.3, 9.3, 11.2 | • Uses clear language and concepts, and tone and pace appropriate for the audience and purpose |
| Navigate the world of work | 1.1-1.3, 2.1-2.3, 3.1-3.6, 4.1, 5.1, 5.3, 5.4, 6.4, 7.1, 7.2, 8.1, 8.2, 9.3, 10.2, 11.1 | • Builds an understanding of personal roles and responsibilities for work<br>• Explores and implements, where identified, the implicit expectations of policies and procedures<br>• Understands rights and responsibilities, and complies with legal and regulatory requirements |
| Interact with others | 1.1, 7.1, 7.2, 8.1- 8.3, 11.2 | • Complies with work instructions and contributes to work group discussions using accepted conventions<br>• Recognises common differences in other people and implements basic strategies to address own reaction to these differences |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1, 3.4-3.7, 4.1-4.2, 5.1-5.4, 6.1- 6.4, 9.1, 9.2, 9.3, 10.1-10.3, 11.1 | • Follows clearly defined instructions and sequencing, and monitors own progress for the task, seeking assistance when necessary<br>• Makes low impact decisions within familiar situations, based on a range of predefined or routine solutions<br>• Identifies ideas for other applications and considers them in current contexts<br>• Responds to predictable routine problems and implements standard and logical solutions |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| ICTWHS204 Follow work health and safety and environmental policy and procedures (release 2) | ICTWHS204 Follow work health and safety and environmental policy and procedures (release 1) | Updates to correct numbering in performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWHS204 Follow work health and safety and environmental policy and procedures

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with ICT Information and Communications Technology Training Package Version 3.1.<br><br>Release created to correct numbering in performance criteria. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- identify and apply the work health and safety (WHS) legislative and safety requirements for construction work
- identify the range of common construction hazards and procedures for the assessment of risk and application of the hierarchy of control
- apply WHS communication processes, information and documentation
- contribute to the WHS committees and support representatives
- recognise the common safety signs and symbols
- identify and apply procedures for reporting hazards, incidents and injuries
- identify and apply the general procedures for responding to incidents and emergencies, including evacuation, first aid, fire safety equipment and personal protective equipment
- recognise and report hazards to designated personnel
- follow workplace procedures necessary to control risks in the workplace
- recognise the safe handling procedures for optical fibres and laser sources.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:


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- describe the relevant Commonwealth, state and territory WHS legislation, regulations, codes of practice, and industry standards and guidance notes relevant to own workplace, role and responsibilities
- describe the differences between Commonwealth, state and territory WHS legislation and regulations
- identify and describe the common construction hazards
- identify different types of asbestos containing materials (ACM) (via photographs) and common sources of asbestos containing materials (ACM) found in the work environment and describe the controls required to mitigate risk
- identify the general construction work activities that require licences, tickets or certificates of competency
- identify and discuss the information and documentation used to maintain and inform on safe work practices
- explain the purpose of environmental control processes for the following:
  - air quality management
  - disposal and handling of hazardous and dangerous substances
  - noise pollution
  - safe disposal of fibre offcuts
  - stormwater and materials spillage
  - waste disposal
- describe the WHS responsibilities and rights of duty holders and workplace parties under environmental and WHS legislation, regulations and codes of practice, including:
  - persons in control of construction work and/or projects
  - employers and self-employed persons
  - persons in control of a business or undertaking (PCBU) and officers
  - supervisors
  - employees and workers
  - designers
  - inspectors
  - manufacturers and suppliers
- describe how individuals engage and participate in WHS activities in the workplace
- list the safety implications of working with optical fibres and equipment including:
  - hazards relating to handling of optical fibre and laser light source in the workplace
  - injuries that may occur:
    - damage to retina from lasers
    - damage to lungs from inhalation of fibre offcuts and particles
    - needle stick injury from fibres and offcuts
  - laser warning signs and labels relating to optical fibre components and equipment
  - safety requirements when handling and working with:
    - devices
    - laser light sources


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    - optical fibre connectors
    - optical fibres
    - patchcords
- state the personal responsibilities in complying with safe work practices including those relating to:
    - housekeeping
    - identification of hazards
    - preventing bullying or harassment
    - smoking
    - use of amenities
    - use of drugs and alcohol
- discuss the principles of risk management (including hazard identification, risk assessment and control) for construction work
- state ways in which WHS is managed in the workplace, and activities required under WHS legislation including:
    - hazard identification
    - hazards that exist in the workplace
    - WHS instruction
    - preferred order of ways to control risks (known as the hierarchy of control)
    - risk assessment and controls
    - role of WHS committees and representatives
    - training and provision of WHS information
    - types of common personal protective equipment and fire safety equipment
    - types of WHS information and documentation
- describe the workplace environmental and WHS procedures relevant to various types of work being undertaken, including procedures for:
    - designated personnel responsible for WHS
    - employee and worker participation in WHS management
    - general first aid response requirements
    - general workers compensation and injury management
- describe the procedure for recognising, reporting and responding to WHS for:
    - accidents
    - dangerous occurrences
    - emergencies
    - hazards
    - incidents
    - injuries
    - fires
    - near misses
    - evacuation procedures


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- identify and describe the function of WHS communications processes within an organisation
- discuss the purpose and process for completing job safety analysis or safe work method statements
- describe the meaning of WHS symbols found on signs and labels in the workplace
- describe the work operations to control risks
- explain the process of traffic control for a single vehicle
- describe the risks associated with confined spaces and harmful gasses, and explain the appropriate responses.

# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances should be typical of those experienced in the telecommunications – work health and safety field of work and include access to:

- relevant WHS legislation, regulations and codes of practice
- WHS implementation resources, such as sample forms, signs and procedures
- enterprise WHS policies and procedures
- personal protective equipment
- first aid equipment
- fire safety equipment
- relevant work areas for identification of hazards and control measures
- optic fibre cabling and equipment.

Note: Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Refer to the ICT Implementation Guide Companion Volume for recommended assessor details.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR201 Work effectively in telecommunications technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to recognise the various sectors of the telecommunications industry and to perform individual work and work with others in telecommunications technology.

It applies to individuals who may undertake a range of simple tasks under close supervision and whose range of technical skills and knowledge is limited.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| **Elements**<br>*Elements describe the essential outcomes* | **Performance Criteria**<br>*Performance criteria describe the performance needed to demonstrate achievement of the element.* |
|---|---|
| 1. Plan skills development | 1.1 Obtain and update specific information on the various sectors of the telecommunications industry<br>1.2 Seek advice on future career directions from appropriate people<br>1.3 Identify possible career directions in industry or organisation for personal advancement<br>1.4 Conduct self-assessment of personal skills against job role to identify skills gap and plan for further skills development |


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| | |
|---|---|
| | 1.5 Determine appropriate methods to acquire additional skills<br>1.6 Prepare portfolio of evidence to support the skills development plan<br>1.7 Identify and apply methods for maintaining currency of industry developments |
| 2. Organise personal work priorities | 2.1 Ensure that employment terms and conditions are accessed and understood<br>2.2 Ensure that work goals and objectives are understood, negotiated and agreed according to organisational requirements<br>2.3 Identify, access sources of information relevant to technical and regulatory requirements and apply to work<br>2.4 Assess and prioritise workload to ensure tasks are completed within identified timeframes<br>2.5 Monitor and adjust personal work performance to ensure achievement of tasks |
| 3. Participate in a team | 3.1 Consult team members to identify team purpose, roles, responsibilities, goals, plans and objectives<br>3.2 Develop strategies to support the team and seek assistance from team members when necessary to prevent conflict within the team<br>3.3 Give and receive feedback to assist in meeting team and organisation goals<br>3.4 Communicate unresolved issues to appropriate personnel to ensure action is taken in response to these matters |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.3, 1.4, 1.5, 1.7, 2.5 | • Employs a range of approaches and investigative techniques to source the knowledge required to establish, plan, manage and evaluate skill development |
| Reading | 1.1, 2.1, 2.3 | • Recognises and interprets text to determine key information and specific requirements and responsibilities |


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| | | |
|---|---|---|
| Writing | 1.6 | • Develops material for a specific audience using clear and detailed language in order to convey explicit information, requirements and recommendations |
| Oral Communication | 1.2, 3.1, 3.3, 3.4 | • Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning |
| Navigate the world of work | 2.1, 2.2, 3.3 | • Takes steps to develop skills, obtain qualifications and/or experience relevant to current or desired work role<br>• Attempts to follow directions on the scope of responsibility within the role and begins to recognise when to involve others |
| Interact with others | 1.2, 3.1, 3.2, 3.3 | • Cooperates with team as part of familiar routine activities, and contributes to specific activities requiring joint responsibility and accountability<br>• Seeks support from team when preventing conflict |
| Get the work done | 1.3-.6, 2.2, 2.4, 2.5 | • Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing and timing |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalency status** |
|---|---|---|---|
| ICTWOR201 Work effectively in telecommunications technology | ICTWOR2141A Work effectively in a telecommunications technology team | Updated to meet Standards for Training Packages<br>Code and title changed. | Equivalent unit |


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# Links

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# Assessment Requirements for ICTWOR201 Work effectively in telecommunications technology

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- develop a career portfolio or similar information
- obtain information on the relevant telecommunications industry sectors including employment conditions
- prepare work schedule, prioritising urgent requests
- actively participate in a team.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline different roles that people may play within a telecommunications team, how this impacts on the way a team works and what it might achieve
- identify the terms and conditions of employment common to the telecommunications industry
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- identify the various sectors of the telecommunications industry
- identify organisational policies, plans and procedures
- describe skills development in career planning terms
- identify sources of advice on career planning and skill development
- outline specific work health and safety (WHS) requirements relating to the activity and site conditions
- identify types of evidence and ways of creating portfolios of evidence
- outline typical issues and challenges that occur when working in teams.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the Telecommunications – Workplace effectiveness field of work and include access to:

- a telecommunications technology team
- examples of resumes and career planning resources
- relevant documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR301 Organise resources

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to organise resources for a telecommunications project in a client environment, including preparing and evaluating tenders, organising equipment and labour resources, and client training.

It applies to individuals who may be involved in assessing installation requirements, planning and performing installations, testing installed equipment and fault finding. It involves a degree of autonomy and may include limited supervision of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Organise for third party supply | 1.1 Develop specifications and company criteria for material supply and purchasing, and include in appropriate tender documents<br>1.2 Prepare tender documents according to company policy<br>1.3 Identify likely material suppliers and invite to tender and supply |


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| | |
|---|---|
| | 1.4 Evaluate and accept tenders as appropriate to company policy<br>1.5 Negotiate price and conditions of purchase to company guidelines and satisfaction |
| 2. Organise supply of equipment and material | 2.1 Develop specifications detailing types and quantities of equipment and material<br>2.2 Notify supplier to deliver equipment and material to designated location within specified timeframe |
| 3. Organise client training | 3.1 Ascertain detail of training required from client and establish timeframe for client training<br>3.2 Determine and organise resources to undertake level of training required |
| 4. Assess and organise labour resources | 4.1 Produce estimate of total labour resources required, using standard installation times and allowing for contingencies<br>4.2 Determine required labour skills to meet resource allocation for planned activities<br>4.3 Establish workforce with required numbers and skills of staff to meet demand<br>4.4 Notify workforce of job requirements including work health and safety (WHS) considerations, and organise priorities to ensure agreed timeframe with client is met |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.3, 1.4 | • Recognises and interprets written and visual text to determine key information and specific requirements and responsibilities |
| Writing | 1.1-1.3, 1.5, 2.1, 2.2, 3.1, 4.4 | • Develops material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.3, 1.5, 2.3, 3.1, 4.1 | • Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning |


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| | | |
|---|---|---|
| Numeracy | 1.1, 1.4, 1.5, 2.1, 3.1, 4.1-4.3 | • Uses mathematical skills to estimate materials and resource requirements |
| Navigate the world of work | 1.4, 1.5 | • Recognises and follows company policies and guidelines when evaluating and selecting tenders and negotiating price and conditions |
| Get the work done | All | • Applies formal processes when planning material and labour supply and client training tasks, producing plans with logically sequenced steps, reflecting some awareness of time and resource constraints and the needs of others in the immediate vicinity<br>• Initiates standard procedures when responding to familiar problems within labour supply context |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR301 Organise resources | ICTWOR3028A Organise resources | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR301 Organise resources

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- accurately develop tenders for customer premises equipment (CPE) products, equipment, peripherals and associated equipment
- assess tenders and provide a clear report outlining all options, including recommendations with supporting reasons
- organise supply of equipment and material to designated location to meet specified timeframe
- identify labour needs and organise labour to meet installation schedules
- determine client training needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline appropriate engineering and design practices and procedures
- identify appropriate tools, equipment and materials required to do the work
- identify enterprise permit procedures and recording procedures
- identify the work health and safety (WHS) practices
- outline work planning and organisation theory
- identify relevant plant and equipment operations
- identify relevant statutory requirements
- explain time management techniques.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:

- a site for organising resources
- enterprise and site-related documentation
- regulatory, supplier and equipment documentation than impacts on activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR302 Organise material supply

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the, skills and knowledge required to organise material supplies for a telecommunications project, including preparing and evaluating tenders from third party suppliers.

It applies to individuals who may be involved in assessing installation requirements, planning and performing installations, testing installed equipment and fault finding. It involves a degree of autonomy and may include limited supervision of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine material needs | 1.1 Assess material needs from design plans and comply with relevant legislation, codes, regulations and standards<br>1.2 Check availability of required materials within existing stock<br>1.3 Assess availability of material from preferred suppliers |


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| | |
|---|---|
| 2. Prepare and evaluate tenders | 2.1 Develop specifications and criteria for material supply and purchasing<br>2.2 Prepare tender documents and invite quotes from material suppliers according to enterprise policy<br>2.3 Evaluate tenders and ensure they are detailed in accordance with enterprise procedures |
| 3. Organise delivery of equipment and material to site | 3.1 Select types and quantities of equipment available from existing stocks and pack for distribution<br>3.2 Arrange delivery of equipment and material within specified timeframe<br>3.3 Organise third party supply according to agreed timeframe and supply agreements |
| 4. Undertake administrative tasks | 4.1 Record warranty details and distribute to relevant parties as required<br>4.2 Issue relevant financial documents according to enterprise policy<br>4.3 Record materials received in asset register according to enterprise procedures<br>4.4 Complete administrative requirements according to enterprise procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1-1.3, 2.3 | • Recognises and interprets written and visual text to determine key information and specific requirements and responsibilities |
| Writing | 2.1, 2.2, 3.2, 3.3, 4.1, 4.4 | • Develops material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations<br>• Employs the expected writing and formatting conventions to meet the expectations of a specific audience |
| Oral Communication | 2.2, 3.2, 3.3, 4.1 | • Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning |


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| | | |
|---|---|---|
| Numeracy | 1.1, 2.2, 2.3, 3.1, 4.2, 4.3 | • Uses mathematical skills to estimate materials and resource requirements |
| Navigate the world of work | 1.1, 4.2-4.4 | • Takes personal responsibility for adherence to relevant legislation, codes, regulations and standards, and enterprise policies and procedures |
| Get the work done | 1.1-1.3, 2.1-2.3, 3.1-3.3 | • Plans purchasing and supply of materials and equipment, accepting stated goals and aiming to achieve them efficiently<br>• Implements actions in relation to supply and delivery as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Uses a formal decision making process, setting or clarifying goals, gathering information, and identifying and evaluating several choices against a limited set of criteria in relation to assessing needs, selecting materials and equipment, and evaluating tenders |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR302 Organise material supply | ICTWOR3035A Organise material supply | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR302 Organise material supply

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- accurately apply the tender process according to both enterprise and legislative requirements
- comply with all related work health and safety (WHS) requirements and work practices
- determine material needs:
  - from design plans
  - from relevant databases
  - beyond current holdings
- organise supply of equipment and material to site
- record materials received on asset register.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify appropriate engineering and design practices and procedures
- outline enterprise permit and recording procedures
- describe WHS practices
- outline work planning and organisational theory
- describe relevant plant and equipment operations
- identify relevant statutory requirements
- identify time management techniques
- identify tools, equipment and materials required to do the work.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:

- a site for ordering materials
- relevant regulatory, enterprise, supplier and equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR303 Schedule resources

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to undertake scheduling of resources for a new installation or upgrade of an existing system for all telecommunications applications including telephony, data, video and multimedia.

It applies to individuals who may be involved in assessing installation requirements, planning and performing installations, testing installed equipment and fault finding. It involves a degree of autonomy and may include limited supervision of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Scope project resources | 1.1 Collate and analyse design and estimation documents from appropriate personnel for resource needs and deadlines, complying with relevant legislation, codes, regulations and standards<br>1.2 Consult interested parties for input to schedule |
| 2. Schedule | 2.1 Coordinate resource requirements for project to match available |


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| | |
|---|---|
| resources for project | labour to quantity and type of work required<br>2.2 Schedule availability of resources to suit relevant interested parties and according to works schedules, including start and finish dates<br>2.3 Document and clearly communicate resources schedule to appropriate personnel for approval |
| 3. Monitor and coordinate resources schedule according to project progress | 3.1 Monitor and coordinate quantity, quality and timing of supply of each input and service according to progress of projects being undertaken<br>3.2 Reschedule resources based on priorities and report to appropriate person according to enterprise guidelines<br>3.3 Complete administrative tasks |

# Foundation Skills

*This section describes the Foundation Skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 3.3 | • Recognises and interprets written and visual text to determine key information and specific requirements and responsibilities |
| Writing | 1.1, 1.2, 2.2, 2.3, 3.2, 3.3 | • Develops material for a specific audience using clear and detailed language to convey explicit information, requirements and recommendations |
| Oral Communication | 1.2, 2.3, 3.2 | • Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning |
| Numeracy | 1.1, 2.1-2.3, 3.1, 3.2 | • Uses mathematical skills to estimate resource allocation and work schedules |
| Navigate the world of work | 1.1, 2.3, 3.2 | • Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to scoping of project resources<br>• Recognises and follows explicit and implicit enterprise protocols regarding gaining approval for resources schedule and any rescheduling |
| Interact with others | 1.2 | • Understands what to communicate, with whom and how in consultations regarding input to schedule |


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| | | |
|---|---|---|
| Get the work done | All | • Sequences and schedules complex activities, monitors implementation and manages relevant communication when scoping, scheduling, monitoring and coordinating resources schedule<br>• Uses systematic, analytical processes in matching labour supply to work required and monitoring progress, gathering relevant information and evaluating options against agreed criteria<br>• Recognises and takes responsibility for addressing predictable and less predictable problems when rescheduling according to priorities |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR303 Schedule resources | ICTWOR3041A Schedule resources | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR303 Schedule resources

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- identify resource requirements from plans, equipment and system manuals, specifications and relevant enterprise policy
- plan and provision to meet key dates and milestones for:
  - appropriately skilled labour
  - volume and type of material
- monitor work progress, and coordinate and adjust resource requirements to meet client needs and cost parameters.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify appropriate engineering and design practices and procedures
- identify enterprise permit procedures and enterprise recording procedures
- identify relevant industrial awards and work health and safety (WHS) practices
- outline relevant plant and equipment operations
- identify relevant statutory requirements
- describe team communication processes and deadline setting
- explain time management techniques
- identify tools, equipment and materials required to do the work
- outline work planning and organisational theory.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:

- a suitable telecommunications operations site
- current equipment
- relevant enterprise and site related documentation
- relevant regulatory, supplier and equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR304 Manage spare parts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to manage spare parts in all areas of telecommunications and includes maintenance of a database, stock control and dispatch.

It applies to individuals who may be involved in assessing installation requirements, planning and performing installations, testing installed equipment and fault finding. It involves a degree of autonomy and may include limited supervision of others.

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Manage receipt and dispatch of spare parts | 1.1 Obtain relevant legislation, codes, regulations and standards, and follow work health and safety (WHS) and environmental requirements for given work<br>1.2 Identify hazards and make worksite safe according to relevant safety legislation and company work practices, and use personal |


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| | |
|---|---|
| | protective equipment<br>1.3 Unload, unpack and store incoming spare parts using appropriate methods and enterprise procedures, and check off delivered items on documentation<br>1.4 Package, label and relocate outgoing spare parts ready for dispatch using enterprise procedures<br>1.5 Update parts database to reflect current spare parts movements and holdings, following each dispatch or delivery, and complete any other administrative task required by enterprise |
| 2. Store spare parts | 2.1 Label spare parts using appropriate identification scheme and place in predefined storage locations<br>2.2 Observe antistatic precautions when handling equipment susceptible to damage by electrostatic discharge<br>2.3 Display, maintain and update material safety data sheets (MSDS) on site |
| 3. Manage stock flow | 3.1 Action spare parts requests by checking database for availability and location, and organise the dispatch<br>3.2 Monitor levels of spare parts stock by examining database reports against enterprise usage and replenishing stock when necessary<br>3.3 Investigate and keep records of alternative suppliers of spare parts to minimise impact of availability and cost issues with regular suppliers<br>3.4 Monitor spare parts with limited shelf life, and dispose of and replace when necessary<br>3.5 Audit spare parts holdings for ready supply of items to minimise disruptions to job completions<br>3.6 Update database from appropriate documentation each time a store’s transaction occurs to maintain validity of data |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.5, 2.2, 3.1, 3.3, 3.4 | • Recognises and interprets written and visual text to determine key information, and specific requirements and responsibilities |


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| | | |
|---|---|---|
| Writing | 1.3-1.5, 2.1, 2.3, 3.1, 3.3 | • Develops material for a specific audience, using clear and detailed language to convey explicit information, requirements and recommendations<br>• Uses expected writing conventions and forms |
| Oral Communication | 3.1 | • Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning |
| Numeracy | 1.3-1.5, 3.2-3.5 | • Uses mathematical skills to estimate materials and evaluate and predict resource requirements |
| Navigate the world of work | 1.1-1.4, 2.1-2.3 | • Takes personal responsibility for adherence to legal and regulatory requirements relevant to spare parts work context, and draws attention to any issues that may affect self or others<br>• Recognises and follows explicit and implicit company and health and safety protocols, and meets expectations associated with own role |
| Get the work done | All | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency, when managing receipt and dispatch, storage and stock flow<br>• Uses systematic, analytical processes when monitoring and auditing, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Initiates standard problem solving procedures when identifying hazards within immediate context<br>• Seeks to improve a future response through investigating alternative suppliers<br>• Uses database systems and tools to access, organise, analyse and display information relevant to role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR304 | ICTWOR3093A Manage spare | Updated to meet | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| Manage spare parts | parts | Standards for Training Packages | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR304 Manage spare parts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- safely apply spare parts management procedures
- efficiently arrange for storage and ordering of spare parts
- research alternative parts replacements
- accurately update spare parts management database.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain computer and database operation
- describe handling of:
  - chemicals and dangerous materials
  - sensitive electronic equipment using antistatic procedures and safeguards
- outline modern storage practices and identification of parts location
- outline work health and safety (WHS) procedures
- identify service level agreements
- describe stocktake and audit of spare parts holdings
- identify telecommunications components and assemblies.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:


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- a site where work may be conducted
- current equipment
- a database for relevant regulations
- organisational procedures
- equipment documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR305 Supervise worksite activities

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to supervise small-scale projects with a limited range of technical skills.

It applies to individuals who may be involved in assessing installation requirements, planning and performing installations, testing installed equipment and fault finding. It involves a degree of autonomy and may include limited supervision of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for worksite activities | 1.1 Clarify requirements of job with client and project personnel, and arrange access to site<br>1.2 Confirm resource requirements and allocate time and schedule activities with project manager following relevant legislation, codes, regulations and standards, site specific safety requirements and enterprise procedures |


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| | |
|---|---|
| | 1.3 Document or articulate worksite activities plan and verify with project manager<br>1.4 Source materials and equipment and place orders according to enterprise policy<br>1.5 Confirm external agency licences and approvals<br>1.6 Notify affected parties of works to be undertaken<br>1.7 Inform staff of their responsibilities on site |
| 2. Supervise and monitor worksite activities | 2.1 Direct and supervise staff in work activities, following plan<br>2.2 Account for staff, activities and resource usage<br>2.3 Recognise contingency situations and take corrective actions in consultation with project manager |
| 3. Perform administrative tasks | 3.1 Undertake administrative tasks<br>3.2 Prepare simple report and present to project manager |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 1.4, 1.5, 3.1 | • Recognises and interprets text to determine key information and specific requirements and responsibilities |
| Writing | 1.1-1.3, 1.5-1.7, 2.1, 2.3, 3.1, 3.2 | • Develops material for a specific audience using clear and detailed language |
| Oral Communication | 1.1-1.3, 1.5-1.7, 2.1, 2.3, 3.2 | • Participates in a verbal exchange of ideas and elicits the views and opinions of others by listening and questioning |
| Numeracy | 1.2, 2.2 | • Uses mathematical skills to estimate materials and evaluate and predict resource requirements |
| Navigate the world of work | 1.2-1.5 | • Appreciates the implications of legal and regulatory responsibilities related to own work, and recognises some general legal principles applicable across work contexts<br>• Recognises and follows explicit and implicit |


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| | | |
|---|---|---|
| | | enterprise policies and protocols, and meets expectations associated with own role |
| Interact with others | 1.1-1.7, 2.1-2.3 | • Understands what to communicate, with whom and how when preparing, monitoring and supervising worksite activities<br>• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and taking a leadership role when supervising and monitoring activities<br>• Uses a combination of formal, logical planning processes and an increasingly intuitive understanding of context to identify relevant information and risks, and identify and evaluate alternative strategies and resources when preparing, supervising and monitoring worksite activities<br>• Recognises and takes responsibility for addressing predictable and less predictable problems in familiar work contexts |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR305 Supervise worksite activities | ICTWOR3127A Supervise worksite activities | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR305 Supervise worksite activities

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- accurately plan work activities, prioritising and allocating tasks
- liaise effectively with client or project manager
- monitor work progress and reallocate resources to meet completion requirements
- supervise staff, ensuring compliance with work health and safety (WHS) and relevant regulations.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify appropriate tools, equipment and materials required for the work
- identify enterprise permit procedures and recording procedures
- describe WHS practices
- identify relevant plant and equipment operations
- identify relevant statutory requirements and industrial awards
- explain team communication processes
- describe typical worksite issues
- describe work planning and organisation theory.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:


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- a telecommunications operations site
- equipment currently used in industry
- enterprise and site related documentation
- agency licences and relevant regulatory, supplier and equipment documentation that impacts on worksite activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR306 Resolve technical enquiries using multiple information systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to remotely support the resolution of complex technical enquiries related to a product or service.

It applies to individuals in a call centre environment with a background in telecommunications and experience in client access networks and client infrastructure, including equipment and cabling, who use multiple information systems to both obtain and record client information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Initiate contact with client | 1.1 Apply all relevant legislation, codes, regulations and standards in resolution process<br>1.2 Receive and analyse enquiry to efficiently select initial course of action |


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| | |
|---|---|
| | 1.3 Engage effectively with client to confirm initial referral details and propose initial course of action |
| 2. Obtain information from multiple information systems | 2.1 Identify information needs and sources of this information<br>2.2 Log on to and navigate relevant information systems efficiently<br>2.3 Record details of informant and enquiry in information systems according to enterprise requirements<br>2.4 Identify and verify information relevant to enquiry and its resolution with informant |
| 3. Develop plan to resolve enquiry | 3.1 Review critical information with informant and apply technical expertise to develop options for resolving enquiry<br>3.2 Consider all inputs and recommend course of action, including escalation<br>3.3 Negotiate suitable course of action with informant<br>3.4 Record details of course of action as required by enterprise information systems |
| 4. Implement plan to resolve enquiry | 4.1 Confirm negotiated course of action with informant prior to initiating actions and seek agreement on schedule of actions for longer term resolutions<br>4.2 Identify and initiate actions to be taken by technical support operator, informant or other parties<br>4.3 Contact informant to confirm success of planned actions<br>4.4 Record outcomes of resolution as required by information systems |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2, 2.4, 3.1, 3.2, 4.2 | • Recognises and interprets text to determine key information and specific requirements and responsibilities |
| Writing | 1.3, 2.3, 2.4, 3.1, 3.3, 3.4, 4.1-4.4 | • Prepares specific information that conveys an understanding of outcomes and alternatives, and uses terminology appropriate to present to relevant personnel |


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| | | |
|---|---|---|
| Oral Communication | 1.3, 2.4, 3.1, 3.3, 4.1-4.3 | • Participates in a verbal exchange of ideas and elicits the views and opinions of others by listening and questioning<br>• Articulates requirements and strategies clearly, distinctively and creatively, based on techniques and language appropriate to the audience and environment |
| Navigate the world of work | 1.1 | • Takes personal responsibility for adherence to legal and regulatory requirements relevant to own work context |
| Interact with others | 1.3, 2.4, 4.1, 4.3 | • Initiates and contributes to conversations with clients, responding, explaining, clarifying and expanding on ideas and information as required |
| Get the work done | 1.2, 1.3, 2.2, 2.3, 3.1-3.3, 4.4 | • Plans and implements client enquiry resolution, accepting stated goals and aiming to achieve them efficiently<br>• Selects from a range of pre-determined options when determining action to be taken by others, identifying and taking situational factors into account<br>• Applies formal problem solving processes when tackling an unfamiliar problem, breaking complex issues into manageable parts and identifying and evaluating several options for action<br>• Uses multiple digital information systems and tools to access, organise, analyse and display information relevant to role |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR306 Resolve technical enquiries using multiple information systems | ICTWOR3231A Resolve technical enquiries using multiple information systems | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR306 Resolve technical enquiries using multiple information systems

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- apply efficient computer usage to efficiently navigate relevant systems for the required information
- use effective interpersonal skills to develop a plan of action to deal with the enquiry
- develop agreement to resolve the enquiry
- accurately document all dealings for future reference and follow up resolution effectively.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain a range of conflict resolution approaches
- identify database and spreadsheet concepts
- describe enterprise escalation policies and procedures
- identify enterprise information systems
- identify legislation, codes of practice and other formal agreements that directly impact on resolution processes
- outline typical issues and challenges that occur when dealing with clients in a telecommunications environment.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:


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- a client contact centre
- current client contact technologies
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR307 Collect and analyse technical information

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to investigate a technical situation involving the collection and analysis of information from a variety of sources, including interviews and database systems. The technical situation under investigation may be the result of a fault or failure of a product, service or process.

It applies to individuals who undertake investigations. It may involve a degree of autonomy and some accountability for the quality of outcomes.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunication – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Obtain recorded information | 1.1 Apply all relevant legislation, codes, regulations and standards in analysis process<br>1.2 Verify situation to be investigated and identify appropriate sources of information for this situation<br>1.3 Obtain relevant information from computer systems and analyse |


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| | |
|---|---|
| | and record information |
| 2. Conduct simple interview | 2.1 Select interviewees with correct information about matter being investigated and select interview process to suit circumstances of interviewee<br>2.2 Prepare for interview by performing preliminary research<br>2.3 Develop interview questions to identify key points for effective interview<br>2.4 Inform interviewee how the information will be used and observe their right to privacy<br>2.5 Conduct interview using effective listening and questioning techniques, and focus interviewee on information relevant to matter being investigated<br>2.6 Record information obtained in interview |
| 3. Analyse information | 3.1 Analyse critical information by reviewing situation being investigated<br>3.2 Distinguish between factual information and assumptions, and make deductions based on factual critical information<br>3.3 Incorporate assumptions into reasoning process where it assists in forming valid inferences<br>3.4 Analyse inferences from those deductions and assumptions, and produce resolution of situation being investigated |
| 4. Implement outcomes of analysis | 4.1 Identify practical actions based on inferences arising from analysis process<br>4.2 Implement practical actions to resolve situation<br>4.3 Review outcomes of practical action by assessing their impact on situation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 3.1, 3.2, 4.1 | • Recognises and evaluates text to determine key information and specific requirements and responsibilities |
| Writing | 1.2, 1.3, 2.1, 2.3, 2.5, | • Develops material for a specific audience using clear and detailed language |


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| | | |
|---|---|---|
| | 2.6, 3.1, 3.3, 3.4, 4.3 | • Records information in a sequential manner using clear and appropriate terminology for reference purposes |
| Oral Communication | 1.2, 2.1, 2.4, 2.5 | • Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning, modifying the approach according to individual responses<br>• Presents expectations of workplace procedures, choosing language appropriate to the audience |
| Numeracy | 3.1, 3.2 | • Performs mathematical calculations to check, interpret and confirm results of analysis |
| Navigate the world of work | 1.1 | • Takes personal responsibility for adherence to legal and regulatory requirements relevant to the analysis process |
| Get the work done | All | • Takes responsibility for planning and organising the resolution process, identifying ways of sequencing and combining elements for greater efficiency, and considering how to link with the work of others<br>• Applies formal processes when planning analysis, producing plans with logically sequenced steps and reflecting some awareness of time and resource constraints and the needs of others<br>• Implements practical actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues<br>• Uses a formal decision making process in analysing information, setting or clarifying goals, gathering information, and identifying and evaluating against a limited set of criteria<br>• Applies formal problem solving processes when tackling an unfamiliar problem, breaking complex issues into manageable parts and identifying and evaluating several options for action |


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# Unit Mapping Information

| **Code and title**<br>**current version** | **Code and title**<br>**previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR307 Collect and analyse technical information (release 2) | ICTWOR307 Collect and analyse technical information (release 1) | Correction to numbering in performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR307 Collect and analyse technical information

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with ICT Information and Communications Technology Training Package Version 3.1.<br><br>Release created to correct numbering in performance criteria. |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- apply keyboard skills and computer literacy to accurately use a database
- demonstrate appropriate listening, questioning and interviewing techniques
- develop an accurate record of interview
- integrate information from varied sources
- draw logical inferences from information gathered and make sound recommendations for action based on inferences.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe analytical techniques appropriate for information analysis, especially deductive reasoning
- explain conflict resolution approaches
- explain database and spreadsheet concepts and enterprise information systems
- explain information types and their sources
- identify sources of legislation, codes of practice and other formal agreements that directly impact on resolution processes
- describe listening, questioning and interviewing techniques


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- identify privacy issues
- outline the influence of human factors on information analysis, including prejudice, biases and fallacies in reasoning
- describe typical issues and challenges that occur when dealing with clients.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:

- a client contact centre
- current client contact technologies
- interview and evidence recording equipment
- relevant regulatory and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR401 Undertake a civil site survey

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to assess a site for a telecommunications project, including gathering information about the site and the project, surveying the site and evaluating the suitability of the site for the work.

It applies to individuals who work as technical staff with a range of telecommunications skills, involves a degree of autonomy and may include limited supervision of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Prepare for survey | 1.1 Discuss detailed requirements and arrange access to site with key stakeholders<br>1.2 Examine regulatory and statutory requirements associated with telecommunications project<br>1.3 Determine need for specialist studies for site |
| 2. Survey land, | 2.1 Survey existing buildings to assess capability of meeting changes |


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| | |
|---|---|
| buildings and facilities | required for project<br>2.2 Collect information through site survey<br>2.3 Determine environmental impact of development<br>2.4 Estimate impact of prevailing weather conditions on planned changes<br>2.5 Assess and document building options should new structure be necessary<br>2.6 Assess geographical nature of land and determine barriers to signalling |
| 3. Report findings and recommendations | 3.1 Outline survey findings and recommendations to accommodate project requirements on site<br>3.2 Develop options to meet planned changes and associated cost-benefit data<br>3.3 Complete report and forward to relevant stakeholders following relevant procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.2, 1.3, 2.3-2.5 | • Evaluates complex texts to determine key information, and specific requirements and responsibilities |
| Writing | 1.1, 2.1, 2.2, 2.4-2.6, 3.1-3.3 | • Develops written and complex diagrammatic material for a specific audience using appropriate forms and conventions<br>• Records information in a sequential manner using clear and appropriate terminology for reference purposes |
| Oral Communication | 1.1, 3.1, 3.3 | • Conveys details that incorporate evaluation of information and specialised and cohesive language in a format and style appropriate to a specific audience |
| Numeracy | 2.1, 2.2, 2.5, 2.6, 3.2 | • Uses complex mathematical equations to calculate accurately required measurements and diagrams |


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| | | |
|---|---|---|
| Navigate the world of work | 1.2, 3.3 | • Keeps up to date on changes to legislation or regulations relevant to own rights and responsibilities, and considers implications of these when negotiating, planning and undertaking telecommunications project work<br>• Recognises and follows explicit and implicit protocols and meets expectations associated with own role in relation to communication with stakeholders |
| Get the work done | 1.1-1.3, 2.1-2.6 | • Sequences and schedules survey activities, monitors implementation and manages relevant communication with stakeholders<br>• Uses systematic, analytical processes in planning and implementing a survey, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Uses analytical processes to decide on a course of action, establishing criteria for deciding between options in relation to new structures and planned changes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR401 Undertake a civil site survey | ICTWOR4032A Undertake a civil site survey | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR401 Undertake a civil site survey

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- negotiate with key stakeholders, enterprise personnel, clients, community representatives, specialists and other contractors on environmental and network needs
- accurately undertake a survey of environmental conditions, land, buildings and facilities for a telecommunications project
- apply legislative requirements to the project, including relevant operational codes, work health and safety (WHS) requirements and work practices
- report survey findings, outlining options and including recommendations with supporting reasons and coverage of existing and proposed needs.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the background information required to undertake a civil site survey
- explain basic meteorology and weather conditions
- describe the features and operating requirements of construction equipment
- describe geographical barriers to signalling
- identify legislation, codes of practice and other formal agreements that impact on the work activity
- describe licensing and regulatory issues applying to a civil site survey on telecommunications sites
- outline soil testing methods and requirements
- describe
  - civil site safety practices
  - personal protective equipment for civil survey projects


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    - WHS requirements relating to surveys and site conditions
- outline typical issues and challenges that occur on site.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:

- a site for survey
- current equipment
- relevant regulatory and enterprise documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTWOR402 Schedule equipment maintenance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Application

This unit describes the skills and knowledge required to schedule maintenance of telecommunications equipment and networks on client premises and service provider networks.

It applies to individuals with a range of telecommunications skills, involves a degree of autonomy and may include limited supervision of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Telecommunications – workplace effectiveness

## Elements and Performance Criteria

| Elements | Performance Criteria |
|---|---|
| *Elements describe the essential outcomes* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify preventative maintenance program for clients | 1.1 Verify details of client system and equipment type to assess level of maintenance required<br>1.2 Determine type and extent of maintenance agreed and check against existing service level agreement with client<br>1.3 Contact client and agree on suitable time to carry out maintenance program |
| 2. Plan maintenance and | 2.1 Verify details of warranties and service agreements for |


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| | |
|---|---|
| fault clearance activity | client equipment and advise client of charging details where warranty or agreement does not exist<br>2.2 Negotiate and agree on commitments and responsibility with client<br>2.3 Organise work priorities so that maintenance staff are available to meet scheduled commitments |
| 3. Arrange allocation of labour resources | 3.1 Evaluate expertise and competencies of staff in relation to skills required to maintain equipment noted in service level agreement<br>3.2 Allocate staff member with appropriate skills and competency to task to minimise risk of failure<br>3.3 Advise designated repair officer of responsibilities, warranties and service agreements in conducting maintenance and fault repair<br>3.4 Prepare schedule of maintenance program and confirm with client |
| 4. Organise assistance to fault staff | 4.1 Provide additional resources if required<br>4.2 Arrange delivery of additional materials and parts<br>4.3 Escalate fault to appropriate level when it cannot be rectified in specified timeframe<br>4.4 Organise product manufacturer support as appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| **Skill** | **Performance Criteria** | **Description** |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 3.1 | • Recognises and evaluates text to determine key information and specific requirements and responsibilities |
| Writing | 1.1-1.3, 2.1-2.3, 3.1-3.4, 4.2-4.4 | • Develops material for a specific audience using clear and detailed language<br>• Records information in a sequential manner using clear and appropriate terminology for reference purposes |
| Oral | 1.1-1.3, 2.1-2.3, | • Articulates requirements and strategies clearly, distinctively and creatively, based on |


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| | | |
|---|---|---|
| Communication | 3.1-3.4, 4.2-4.4 | techniques and language appropriate to the audience and environment<br>• Participates in a verbal exchange of ideas, and elicits the views and opinions of others by listening and questioning |
| Get the work done | All | • Sequences and schedules maintenance activities, monitors implementation and manages relevant communication<br>• Determines the best course of action when organising work priorities and allocating staff to tasks, with consideration of possible implications of different courses of action<br>• Uses analytical processes to decide on a course of action in relation to organising additional resources and logistics |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICTWOR402 Schedule equipment maintenance | ICTWOR4079A Schedule equipment maintenance | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# Assessment Requirements for ICTWOR402 Schedule equipment maintenance

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Performance Evidence

Evidence of the ability to:

- plan and organise a preventive maintenance schedule according to vendor specified requirements and client agreements
- negotiate fault clearance arrangements with clients, applying related work health and safety (WHS) requirements and work practices
- plan and schedule fault clearance activity, allocating an appropriately skilled repair officer to rectify faults.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe electronic databases, spreadsheets and schedulers
- describe equipment to be maintained
- outline legislation, codes of practice and other formal agreements that impact on the work activity
- describe the process for the procurement of spare parts
- explain service level agreements
- outline specific WHS requirements relating to the activity and site conditions
- describe typical issues and challenges that occur on site
- outline vendor procedures.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the telecommunications – workplace effectiveness field of work and include access to:

- a site where equipment maintenance may be conducted
- enterprise and site-related documentation
- regulatory, enterprise, supplier and equipment documentation that impacts on work activities.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# BSBCMM101 Apply basic communication skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop basic communication skills in the workplace in particular gathering, conveying and receiving information together with completing assigned written information.

It applies to individuals working under direct supervision who are developing basic skills and knowledge of workplace communication in preparation for working in a broad range of settings

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Communication – Interpersonal Communication

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Identify workplace communication procedures | 1.1 Identify organisational communication requirements and workplace procedures with assistance from appropriate people<br>1.2 Identify appropriate lines of communication with supervisors and colleagues<br>1.3 Seek advice on the communication method/equipment most appropriate for the task |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2 Communicate in the workplace | 2.1 Use effective questioning, and active listening and speaking skills to gather and convey information<br>2.2 Use appropriate non-verbal behaviour at all times<br>2.3 Encourage, acknowledge and act upon constructive feedback |
| 3 Draft written information | 3.1 Identify relevant procedures and formats for written information<br>3.2 Draft and present assigned written information for approval, ensuring it is written clearly, concisely and within designated timeframes<br>3.3 Ensure written information meets required standards of style, format and detail<br>3.4 Seek assistance and/or feedback to aid communication skills development |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.1 | • Reviews textual information to identify communication requirements and organisational procedures |
| Writing | 3.2, 3.3 | • Drafts simple texts using appropriate grammar, spelling and punctuation in accordance with organisational standards<br>• Proofreads own texts for accuracy and compliance with organisational requirements |
| Oral Communication | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.2, 3.4 | • Asks questions and listens to gain information or confirm understanding<br>• Listens and follows instructions |
| Navigate the world of work | 1.1, 1.2, 3.1, 3.3, 3.4 | • Follows organisational policies and procedures and practices relevant to own role<br>• Develops skills required to carry out own role by seeking and acting on feedback |


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| | | |
|---|---|---|
| Interact with others | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.4 | • Follows instructions regarding what and how to communicate<br>• Seeks to cooperate with others to achieve results in immediate work context |
| Get the work done | 1.3, 2.3, 3.1, 3.2, 3.3 | • Follows clearly defined instructions, seeking assistance when necessary<br>• Uses digital technologies following instructions to enter and retrieve data |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBCMM101 Apply basic communication skills | BSBCMM101A Apply basic communication skills | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBCMM101 Apply basic communication skills

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- gather information about procedures, methods and equipment requirements for workplace communication, with the assistance of others
- use appropriate verbal and non-verbal skills to seek and convey information in face-to-face situations
- draft routine written documents within designated timeframes and check that the documents meet organisational requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline organisational policies, plans and procedures related to the organisation’s standards or protocols for workplace communication
- describe different communication styles.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals using interpersonal communication skills in the workplace and include access to:

- office equipment
- business resources
- workplace policies and procedures relating to communication
- case studies and, where possible, real situations
- interaction with others.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBCRT401 Articulate, present and debate ideas

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0<br><br>Version created to clarify assessment conditions |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0 |

## Application

This unit describes the skills and knowledge required to articulate, present and debate ideas in a work or broader life context using creative techniques in order to provoke response, reaction and critical discussion.

This unit applies to individuals who contribute and present ideas that may be complex in nature and may relate to new products, services, processes or creative works using a degree of risk taking and storytelling.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Creativity and Innovation – Creative Thinking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Analyse ideas for communication to others | 1.1 Distil key themes, messages and positions to aid in clarity of thought and presentation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.2 Reflect on different ways of communicating ideas for different purposes and to different people<br>1.3 Identify the enabling skills and attributes of individuals who can effectively participate in discussions about ideas |
| 2. Provoke response and reaction | 2.1 Explore and use different techniques to engage, fascinate and involve others in the process of communication and exchange<br>2.2 Explore the ways that storytelling can be used to communicate ideas<br>2.3 Create innovative approaches to different communication challenges<br>2.4 Be prepared to take risks in the way ideas are presented<br>2.5 Identify specific ways to provoke and encourage response in particular individuals or groups |
| 3. Debate and discuss ideas | 3.1 Present and argue substantiated positions on ideas<br>3.2 Be open to critical analysis of own ideas and to the ideas of others<br>3.3 Identify and participate in conversations that challenge and explore different concepts and approaches and generate new ideas<br>3.4 Respond to questions about ideas with confidence and relevant information<br>3.5 Reflect on and appraise the views of others, and use to refine ideas and to embrace new ideas |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.5 | • Considers opinions of others to improve and enhance own learning |
| Oral Communication | 2.1, 3.1, 3.2, 3.3, 3.4 | • Articulates ideas and requirements clearly and creatively using techniques appropriate to audience and environment<br>• Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and |


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| | | |
|---|---|---|
| | | questioning<br>• Uses a range of persuasive responses and makes comparisons which show an understanding of topics and concepts |
| Interact with others | 2.1, 2.2, 2.3 | • Demonstrates sophisticated control over oral, visual and/or written formats, drawing on a range of communication practices to achieve goals |
| Get the work done | 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.3, 3.5 | • Recognises opportunities to develop and apply new ideas and select ideas for implementation<br>• Considers key themes and ideas to be explored and identifies ways to respond to and use diverse perspectives<br>• Uses features and functions of digital tools and technologies to store and present information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBCRT401 Articulate, present and debate ideas<br>Release 2 | BSBCRT401 Articulate, present and debate ideas<br>Release 1 | Updated to clarify assessment conditions | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBCRT401 Articulate, present and debate ideas

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0<br><br>Version created to clarify assessment conditions |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0 |

## Performance Evidence

Evidence of the ability to:

- present ideas and information to a unfamiliar audience and environment that provoke interest and response
- reflect on and appraise the views of others
- participate actively and confidently in critical debate and discussion of ideas while responding to new and different communication situations
- investigate and evaluate creative and different ways of expressing and communicating ideas while making an opportunity pitch.

Note: if a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain different ways in which individuals receive and respond to ideas and information, and what influences their response
- identify the enabling skills and attributes of people needed to effectively discuss ideas
- describe the nature and role of risk taking in the presentation and debate of ideas
- explain the role of storytelling in communicating ideas and key storytelling techniques
- describe common techniques to tailor comments to particular audiences.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the creativity and innovation – critical thinking field of work and include access to opportunities to present, discuss and debate ideas with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBCRT501 Originate and develop concepts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to originate and develop concepts for products, programs, processes or services to an operational level.

It applies to individuals who develop concepts for any business or community activity or process, such as marketing and advertising campaigns, staff development programs, information technology and communication systems, radio and television programs, entertainment events, films, exhibitions and digital media products. Individuals operate with a high degree of autonomy, but collaborate with others to generate ideas and refine concepts to the point where they can be implemented.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Creativity and Innovation – Creative Thinking

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Evaluate and explore needs and opportunities | 1.1 Research and evaluate existing information that informs new concept development<br>1.2 Where appropriate, identify and use gaps in current range of products, programs, processes or services as the catalyst for generating new ideas or concepts |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Expand the potential of new ideas through exploration of opportunities beyond the obvious<br>1.4 Identify factors that could have an impact on ideas or concepts to be developed, including potential for commercialisation<br>1.5 Determine whether other players are filling identified gaps or investigating similar opportunities<br>1.6 Develop preliminary ideas on innovative and different ways to address needs and opportunities<br>1.7 In consultation with relevant stakeholders, agree on broad parameters for developing ideas and concepts to meet market requirements |
| 2 Develop a range of creative approaches | 2.1 Use a range of creative thinking techniques to generate innovative and creative concepts to address identified needs<br>2.2 Challenge, test and experiment with different concepts and ideas as part of a collaborative process<br>2.3 Evaluate concepts in terms of their suitability for the target audience or purpose, their feasibility and their commercial potential<br>2.4 Take account of social, ethical and environmental issues as concepts and ideas are generated and discussed<br>2.5 Identify resources required to achieve desired creative and innovative outcomes<br>2.6 Evaluate the effectiveness of different strategies for achieving desired outcomes<br>2.7 Select concepts or approaches that achieve required outcomes in an innovative and feasible way<br>2.8 Present proposed concepts or approaches in an appropriate format |
| 3 Refine concepts | 3.1 Ensure concept development process is open to ongoing refinement and testing<br>3.2 Seek input and feedback on concepts from relevant stakeholders<br>3.3 Seek specialist advice on creative and technical aspects of proposals as required<br>3.4 Compare concepts with best practice examples of similar products, programs, processes or services<br>3.5 Use a range of creative and practical criteria to determine the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | advantages and disadvantages of different concepts<br>3.6 Evaluate constraints on the realisation of concepts or ideas<br>3.7 Refine proposals based on analysis and feedback |
| 4 Develop concepts to an operational level | 4.1 Use refined concepts as the basis for developing detailed implementation specifications<br>4.2 Present specifications to relevant parties for approval, funding or endorsement<br>4.3 Reflect on methodology used to generate concepts and ideas and note ways of improving this in the future |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.1, 3.7, 4.3 | • Reflects and evaluates methods used to develop concepts and seeks ways to improve<br>• Actively elicits the views and opinions of others to develop and refine ideas |
| Reading | 1.1-1.5, 2.3, 2.6, 3.4, 3.5, 3.6, 3.7, 4.1 | • Interprets and evaluates a range of complex information and considers how to develop and adopt ideas to deliver products or services at an operational level |
| Writing | 1.1-1.4, 1.6, 2.4-2.6, 2.8, 3.2-3.7, 4.1, 4.2 | • Documents findings and ideas using language and structure to suit the purpose<br>• Develops documents designed to gain feedback from others<br>• Prepares proposals and plans for relevant stakeholders incorporating appropriate vocabulary and grammatical structures |
| Oral Communication | 1.7, 2.2, 2.4, 3.2, 3.3, 4.2 | • Expresses thoughtful and challenging opinions using engaging language and non-verbal features<br>• Elicits views and information from others using a range of active listening and questioning techniques |
| Interact with | 1.7, 2.2, 2.4, 2.8, | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group |


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| | | |
|---|---|---|
| others | 3.2, 3.3, 4.2 | interaction and influencing direction<br>• Selects and uses appropriate conventions and protocols when communicating with internal and external stakeholders to seek or share information |
| Get the work done | 1.1- 1.5, 2.1-2.7 , 3.1, 3.4-3.6, 4.2, 4.3 | • Plans and implements complex activities with multiple considerations, monitors implementation, and manages relevant feedback<br>• Uses systematic, analytical processes in complex, non-routine situations to gather required information, identify and evaluate possible concepts, and select the most appropriate concept for development<br>• Develops new and innovative ideas through exploration, analysis and critical thinking<br>• Monitors outcomes, considering results from a range of perspectives and identifying key concepts and principles that may be adaptable to future situations |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBCRT501 Originate and develop concepts | BSBCRT501A Originate and develop concepts | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBCRT501 Originate and develop concepts

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- generate concepts and ideas that provide innovative solutions to identified issues
- evaluate and test concepts and ideas
- present ideas and information to others and reflect on responses
- develop at least two concepts, substantiated and supported with sufficient information to allow implementation to occur.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must :

- describe the broad context in which concepts are being developed
- outline cultural, social and environmental issues and impacts to be considered in developing new concepts
- identify issues and requirements to commercialise the concept
- outline practical and operational issues to be considered in a specific work or community context
- describe the range of broad practical and operational issues that determine whether a concept can be implemented
- identify techniques for generating creative ideas and solutions, and for translating these ideas into workable concepts.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the creativity and innovation – critical thinking field of work and include access to:

- a full range of background information required to evaluate the operational factors that will affect the implementation of concepts
- opportunities to collaborate with others throughout the concept development process.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBCUS201 Deliver a service to customers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to deliver all aspects of customer service at an introductory level. It includes creating a relationship with customers, identifying their needs, delivering services or products and processing customer feedback.

It applies to individuals who perform a range of routine tasks in the workplace using a limited range of practical skills and fundamental knowledge of customer service in a defined context under direct supervision or with limited individual responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Stakeholder Relations – Customer Service

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Establish contact with customers | 1.1 Acknowledge and greet customer in a professional, courteous and concise manner according to organisational and legislative requirements<br>1.2 Maintain personal dress and presentation in line with organisational requirements<br>1.3 Communicate using appropriate interpersonal skills to facilitate accurate and relevant exchange of information |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Maintain sensitivity to customer specific needs and any cultural, family and individual differences<br>1.5 Establish rapport/relationship with customer and express a genuine interest in customer needs/requirements |
| 2 Identify customer needs | 2.1 Use appropriate questioning and active listening to determine customer needs<br>2.2 Assess customer needs for urgency to identify priorities for service delivery<br>2.3 Provide customer with information about available options for meeting customer needs and assist customer to identify preferred option/s<br>2.4 Identify personal limitations in addressing customer needs and seek assistance from designated persons where required |
| 3 Deliver service to customers | 3.1 Provide prompt customer service to meet identified needs according to organisational requirements<br>3.2 Provide information regarding problems and delays, and follow-up within appropriate timeframes as necessary<br>3.3 Communicate with customers in a clear, concise and courteous manner<br>3.4 Identify opportunities to enhance the quality of service and products, and take action to improve the service whenever possible |
| 4 Process customer feedback | 4.1 Promptly recognise customer feedback and handle sensitively according to organisational and legislative requirements<br>4.2 Accurately record any feedback and communication between customers and the organisation according to organisational standards, policies and procedures and legislative requirements<br>4.3 Identify any unmet customer needs and discuss suitability of other products/services<br>4.4 Support customers to make contact with other services according to organisational policies and procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 3.1, 4.1, 4.2, 4.4 | • Understands requirements in organisational policy and procedure documents<br>• Interprets product and service information in a range of formats to provide customer advice |
| Writing | 4.2 | • Records customer information according to organisational requirements |
| Oral Communication | 1.1, 1.3, 1.4, 1.5, 2.1-2.4, 3.2, 3.3, 4.3 | • Provides information or advice using structure and language to suit the audience<br>• Asks questions and listens to gain information or confirm understanding |
| Navigate the world of work | 1.1, 1.2, 3.1, 4.1, 4.2, 4.4 | • Follows organisational procedures and practices relevant to own role |
| Interact with others | 1.1, 1.3-1.5, 2.1-2.4, 3.1, 3.2, 3.3, 4.1, 4.3, 4.4 | • Uses accepted communication practices to establish connections, build rapport and develop professional working relationships<br>• Adjusts personal communication style in response to the opinions, values and particular needs of others |
| Get the work done | 3.2, 3.4, 4.1- 4.3 | • Addresses routine problems in familiar work contexts<br>• Recognises opportunities to enhance work practices and outcomes |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBCUS201 Deliver a service to customers | BSBCUS201B Deliver a service to customers | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBCUS201 Deliver a service to customers

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- greet customer and establish rapport/relationship in accordance with organisational requirements
- identify customer needs using appropriate interpersonal skills
- provide prompt service to address customer needs in accordance with organisational requirements
- identify and follow up opportunities to increase the quality of service and products
- respond to and record all customer feedback according to organisational standards, policies and procedures.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and briefly describe key provisions of relevant legislation from all forms of government that apply to provision of customer services
- identify and explain workplace organisational policies and procedures relating to customer service and the customer service process.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the customer service field of work and include access to:

- office equipment and technology
- workplace documents, organisational policies and procedures for customer service


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- examples of customer complaints and feedback
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBCUS402 Address customer needs

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0<br><br>Version created to clarify assessment conditions |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage an ongoing relationship with a customer over a period of time. This includes helping customers articulate their needs and managing networks to ensure customer needs are addressed.

It applies to individuals who are expected to have detailed product knowledge in order to recommend customised solutions. In this role, individuals would be expected to apply organisational procedures and be aware of, and apply as appropriate, broader factors involving ethics, industry practice and relevant government policies and regulations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Stakeholder Relations – Customer Service

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Assist customer to articulate needs | 1.1 Ensure customer needs are fully explored, understood and agreed<br>1.2 Explain and match available services and products to customer |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | needs<br>1.3 Identify and communicate rights and responsibilities of customers to the customer as appropriate |
| 2 Satisfy complex customer needs | 2.1 Explain possibilities for meeting customer needs<br>2.2 Assist customers to evaluate service and/or product options to satisfy their needs<br>2.3 Determine and prioritise preferred actions<br>2.4 Identify potential areas of difficulty in customer service delivery and take appropriate actions in a positive manner |
| 3 Manage networks to ensure customer needs are addressed | 3.1 Establish effective regular communication with customers<br>3.2 Establish, maintain and expand relevant networks to ensure appropriate referral of customers to products and services from within and outside the organisation<br>3.3 Ensure procedures are in place to ensure that decisions about targeting of customer services are based on up-to-date information about the customer and the products and services available<br>3.4 Ensure procedures are put in place to ensure that referrals are based on the matching of the assessment of customer needs and availability of products and services<br>3.5 Maintain records of customer interaction in accordance with organisational procedures |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.3, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 3.5 | • Interprets textual information obtained from a range of sources and determines how content may be applied to individuals and to organisational requirements |
| Writing | 1.1, 3.1, 3.2, 3.3, 3.4, 3.5 | • Prepares written reports, up-to-date procedures and other workplace documentation that communicate complex information clearly and effectively |
| Oral | 1.1, 1.2, 1.3, 2.1, | • Clearly articulates customer's needs using language suitable to diverse audiences and employs listening |


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| | | |
|---|---|---|
| Communication | 2.2, 3.1, 3.2 | and questioning techniques to confirm understanding |
| Navigate the world of work | 3.5 | • Recognises and applies organisational protocols and meets expectations associated with own work |
| Interact with others | 1.1-1.3, 2.1, 2.2, 3.1, 3.2 | • Selects and uses appropriate communication techniques to establish and maintain positive working relationships<br>• Establishes connections and shares information with others who can contribute to effective work outcomes |
| Get the work done | 2.3, 2.4, 3.3-3.5 | • Develops and implements plans for routine and non-routine tasks recognising the importance of aligning goals and expectations to achieve outcomes<br>• Recognises and takes responsibility for addressing predictable and non-predictable problems in own work context<br>• Uses digital systems to organise and store information relevant to own work |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBCUS402 Address customer needs<br>Release 2 | BSBCUS402 Address customer needs<br>Release 1 | Updated to clarify assessment conditions | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBCUS402 Address customer needs

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0<br><br>Version created to clarify assessment conditions |
| Release 1 | This version first released with Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- communicate effectively with customers including
  - helping customers to articulate their needs and evaluate options
  - explaining products/services and how they match customer needs
  - establishing regular communication
  - explaining customer rights and responsibilities
- address customer's needs
- use organisational procedures to document customer satisfaction
- develop and maintain networks to support meeting customer needs
- identify potential difficulties in meeting customer needs and taking appropriate action.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain organisational procedures and standards for establishing and maintaining customer service relationships


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- describe informed consent
- explain consumer rights and responsibilities
- describe ways to establish effective regular communication with customers
- outline details of products or services including with reference to:
  - possible alternative products and services
  - variations within a limited product and service range.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the customer service field of work and include access to:

- office equipment and resources
- business technology
- organisational policies, procedures, quality systems, manuals and guidelines for customer management
- examples of products/services and promotional strategies
- case studies and, where possible, real situations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBDES401 Generate design solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to generate design solutions in response to a particular design need.

It applies to individuals who generate concepts and solutions in response to a design challenge in any industry context. The starting point may be an open or closed brief; a spontaneous idea; modification of an existing product, service, process or system; or a point in an ongoing design process.

This unit builds on BSBDES201 Follow a design process, and places greater focus on research, concept generation and collaboration with others as key aspects of the design process.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Design – Design Process

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Define the design challenge | 1.1 Determine and evaluate user/client needs<br>1.2 Clarify specifications, parameters and constraints of the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | design challenge in consultation with relevant stakeholders<br>1.3 Articulate essence of the design challenge in an appropriate format |
| 2 Undertake research to inform the design solution | 2.1 Source, evaluate and acknowledge information that may assist in responding to the design challenge<br>2.2 Consider historical, current and future perspectives and trends that might inform design solutions<br>2.3 Consider relevant social, economic, environmental, ethical and cultural issues that may impact design solutions<br>2.4 Analyse, distil and collate information to inform the development of the design solution |
| 3 Communicate and collaborate with others | 3.1 Establish and develop working relationships with key stakeholders<br>3.2 Seek and integrate input and ideas from others during design process<br>3.3 Inform key stakeholders about progress of the design and related implications<br>3.4 Negotiate and agree on any changed requirements or modifications |
| 4 Generate ideas and responses to the design challenge | 4.1 Reflect on and integrate ideas generated from research and consultation<br>4.2 Use a range of creative thinking techniques to generate different options and ideas<br>4.3 Apply relevant principles of functionality, ergonomics, aesthetics and sustainability to development of different options |
| 5 Select a design solution | 5.1 Develop and use a range of criteria to evaluate different options and ideas<br>5.2 Select a preferred solution based on agreed criteria and in consultation with relevant key stakeholders<br>5.3 Adjust and refine proposed design solution based on research, testing and reflection<br>5.4 Present proposed design solution with appropriate supporting documentation according to project requirements |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.4 | • Researches, collates and analyses textual information from a wide range of sources |
| Writing | 1.2, 1.3, 2.1, 2.4, 5.1, 5.3, 5.4 | • Documents ideas, sources and concepts using appropriate formats and specific language<br>• Refines and edits work |
| Oral Communication | 1.2, 1.3, 3.2-3.4, 5.2, 5.4 | • Actively participates in verbal exchanges of ideas and elicits views and opinions of others by listening and questioning<br>• Clarifies, explains or presents information relating to design solution using clear and specific language appropriate to audience |
| Numeracy | 1.3, 4.3, 5.1, 5.4 | • Interprets numeric data and applies mathematical calculations relevant to design solution |
| Navigate the world of work | 2.3 | • Understands nature and purpose of own role and associated responsibilities and how it contributes to the work of others in immediate work context |
| Interact with others | 1.3, 3.1, 5.4 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role<br>• Cooperates with others as part of familiar routine activities and contributes to specific activities requiring joint responsibility and accountability |
| Get the work done | 1.1, 2.1, 2.2, 2.4, 4.1-4.3, 5.1-5.3 | • Takes responsibility for planning and implementing tasks required to achieve outcomes, including those times when interaction with others is<br>• Systematically analyses and evaluates information to aid in decision making and problem solving<br>• Applies some basic principles of lateral thinking to generate new or innovative ideas |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBDES401 Generate design solutions | BSBDES401A Generate design solutions | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBDES401 Generate design solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop and document a design solution through research, reflection, and generation and refinement of ideas
- demonstrate effective collaboration with others in the design process.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the elements and principles of design and their application in the relevant design context
- describe key features of the wider industry, and the economic, social and historical context design solutions are being generated in
- discuss design trends and technologies including other designs and the work of other design practitioners in the relevant industry context
- identify sources of information that support the development of technical and other knowledge
- describe the materials, tools, equipment, techniques and processes used in the generation of design solutions in the relevant industry context.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the design process field of work and include access to:

- interaction with others to reflect the collaborative nature of the design process


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- sources of information on design for the relevant industry context.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBDES402 Interpret and respond to a design brief

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to interpret and creatively respond to a design brief through the production of work.

It applies to individuals working in any industry or design context where work is prescribed by a commissioning agent/client in a brief. Individuals are required to integrate the creative, communication and planning processes that support effective response to a design brief.

Work is carried out independently, although guidance is available if required.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Design – Design Process

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Interpret design brief | 1.1 Correctly interpret the specifications of design brief<br>1.2 Establish and clarify user or client for the proposed product/service to inform design decisions<br>1.3 Identify and clarify specifications, parameters or constraints of design brief in consultation with relevant colleagues |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Source and evaluate information pertinent to design brief |
| 2 Explore and develop design concept | 2.1 Generate ideas for design concept through research, exploration and experimentation<br>2.2 Develop initial design concept consistent with design brief parameters<br>2.3 Evaluate and explore options for refining concept to best meet design brief parameters<br>2.4 Refine options and select approach which best meets design brief requirements |
| 3 Liaise with client | 3.1 Agree on communication process and frequency of communication with client<br>3.2 Present concepts for work at appropriate stages during design process as required<br>3.3 Present and explore different options and creative ideas with client when appropriate<br>3.4 Proactively seek and act on client feedback<br>3.5 Reach agreement on concept for work which complies with design brief |
| 4 Plan production of work | 4.1 Assess specific design production risks<br>4.2 Identify all components required to produce a prototype<br>4.3 Assess technical requirements for production against specified guidelines<br>4.4 Identify and consult with support services required for production<br>4.5 Produce a prototype and evaluate against design brief requirements<br>4.6 Analyse prototype and determine any further adjustments to production requirements<br>4.7 Finalise production specifications supported by accurate and complete documentation |
| 5 Complete production of work | 5.1 Collect and/or organise required components for the work<br>5.2 Produce or monitor the production of work ensuring all parameters of design brief are met<br>5.3 Accurately document work progress in a format appropriate to the nature of the design and requirements of design brief |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.4 Seek client approval for work where appropriate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1, 4.3, 4.5 | • Analyses textual information to accurately interpret job specifications |
| Writing | 1.3, 3.2-3.5, 4.4, 4.5, 4.7, 5.3, 5.4 | • Uses specific industry-related terminology and appropriate formats to develop, document and amend workplace documentation |
| Oral Communication | 1.3, 3.1-3.5, 4.4, 5.4 | • Actively participates in verbal exchanges of ideas and elicits the views and opinions of others by listening and questioning<br>• Uses clear language to clarify, explain and present information |
| Numeracy | 1.1, 1.3, 4.5, 5.3 | • Interprets numeric data and applies mathematical calculations to produce prototype according to design specification |
| Interact with others | 1.3, 3.1-3.5, 4.4, 5.4 | • Actively identifies the requirements of important communication exchanges, selecting appropriate channels, format, tone and content to suit purpose and audience<br>• Collaborates and negotiates with others to achieve joint outcomes |
| Get the work done | 1.1, 1.2, 2.1-2.4, 3.2, 4.1-4.3, 4.6, 4.7, 5.1, 5.2 | • Takes responsibility for planning and implementing tasks required to achieve outcomes, including those times when interaction with others is<br>• Systematically analyses and evaluates information to aid in decision making and problem solving<br>• Applies some basic principles of lateral thinking to generate new or innovative ideas<br>• Understands and explicitly applies some basic principles of lateral thinking to generate new or innovative ideas |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBDES402 Interpret and respond to a design brief | BSBDES402A Interpret and respond to a design brief | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBDES402 Interpret and respond to a design brief

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- articulate and document the process of developing own design practice by learning to develop new skills, ideas and a unique voice
- adjust work processes via peer feedback and self-evaluation
- identify work options and incorporate networking in career development.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list current and emerging designers in the relevant design discipline
- discuss current and emerging trends and technologies in the relevant design discipline, and the opportunities and challenges they represent
- identify professional development information and resources available to designers
- summarise sources of information relating to work opportunities and career planning.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the design process field of work and include access to materials, resources and equipment used in the development of technical and conceptual skills in the relevant design context.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBDES403 Develop and extend design skills and practice

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop and extend skills as a practising designer.

It applies to individuals who work as a designer, in any industry context, either independently or employed by an organisation.

Designers must continually refine, develop and evaluate their own conceptual and technical skills. Research, experimentation and collaboration are key factors in this process.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Design – Design Process

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Acquire and develop technical skills | 1.1 Plan strategies to ensure the development of appropriate technical skills in design practice<br>1.2 Plan and use opportunities to develop and assess technical skills<br>1.3 Identify and use practice, feedback, discussion and evaluation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | opportunities to continuously improve technical skills<br>1.4 Develop and extend technical skills through testing capabilities of materials, tools and equipment<br>1.5 Identify and use relevant media to stimulate technical and professional development |
| 2 Develop conceptual skills and ideas | 2.1 Engage in ongoing experimentation and exploration of different ideas and techniques<br>2.2 Discuss ideas with others and apply knowledge gained to inform own work<br>2.3 Use work practice to gain experience in a range of genres and interpretations<br>2.4 Study the work of others to stimulate conceptual and technical skills development<br>2.5 Research and share ideas across a range of design disciplines<br>2.6 Identify and use a range of opportunities to develop own skills and keep informed about current design practice |
| 3 Develop own voice | 3.1 Explore and experiment with new ideas in making and/or interpreting design work<br>3.2 Explore and use technology, where appropriate, to develop own voice and expand practice<br>3.3 Demonstrate own voice through design project realisation implementation |
| 4 Evaluate own work | 4.1 Seek and apply constructive criticism from others to improve own work<br>4.2 Evaluate own work against planned strategy for own practice<br>4.3 Evaluate own work in the context of work by others to extend own practice<br>4.4 Adjust work processes and practice as necessary to improve technical, conceptual and commercial outcomes |
| 5 Research work opportunities | 5.1 Correctly identify sources of information relating to work opportunities for designers<br>5.2 Identify networks and promotional opportunities for designers which may be helpful in developing career opportunities<br>5.3 Incorporate research results and information into own work and career planning |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 1.1-1.5, 2.2, 2.4, 2.6, 3.2, 4.1-4.3 | • Uses practical strategies to identify and implement improvements in own creative skills and technical design skills and practice |
| Reading | 1.5, 2.4, 2.5, 5.1-5.3 | • Researches and evaluates a variety of textual information from a wide range of sources |
| Writing | 2.5, 4.1, 5.3 | • Uses clear and specific language to document ideas, feedback and research results |
| Oral Communication | 1.3, 2.2, 2.5, 4.1 | • Participates in a range of verbal exchanges and presentations using appropriate tone and vocabulary to suit the audience<br>• Uses active listening and questioning techniques to clarify and confirm understanding |
| Navigate the world of work | 1.2, 1.3, 2.3, 4.1, 5.2 | • Recognises the importance of developing technical skills and of learning from feedback and self-reflection<br>• Begins to broaden areas of interest and focus, seeking new challenges and recognising that expertise can be adapted and applied in diverse contexts |
| Interact with others | 2.5, 4.1, 5.2 | • Begins to cultivate relationships with people with the knowledge, skills and influence to provide collaborative support |
| Get the work done | 1.1, 1.2, 1.4, 1.5, 2.1, 2.3, 2.6, 3.1-3.3, 4.2, 4.4, 5.1 | • Takes responsibility for planning and implementing tasks required to achieve outcomes, including those times when interaction with others is<br>• Systematically analyses and evaluates information to aid in decision making and problem solving<br>• Applies some basic principles of lateral thinking to generate new or innovative ideas<br>• Recognises the potential of new approaches to enhance work practices and outcomes<br>• Evaluates effectiveness of decisions on how well they meet stated goals<br>• Understands key principles and concepts underpinning the design and operation of digital systems and applies these when seeking to understand the potential of new technology |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBDES403 Develop and extend design skills and practice | BSBDES403A Develop and extend design skills and practice | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBDES403 Develop and extend design skills and practice

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use strategies to develop or extend skills, ideas and a unique voice
- adjust work processes as a result of peer feedback and self-evaluation
- research work options, networking and promotional opportunities and incorporate information into own work and career development.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list current and emerging designers in the relevant design discipline
- discuss current and emerging trends and technologies in the relevant design discipline, and the opportunities and challenges they represent
- identify professional development information and resources available to designers
- summarise sources of information relating to work opportunities and career planning.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the design process field of work and include access to materials, resources and equipment used in the development of technical and conceptual skills in the relevant design context.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBDES501 Implement design solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to take a design concept or solution to the implementation stage. The outcome of work could be a completed product, object, system or service, but is more likely to be a complete or partial prototype or model for the design. The focus of the unit is on a general knowledge of design techniques and processes, and practical application to a specific design context.

It applies to individuals who implement concepts and solutions in response to a design challenge in any industry context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Design – Design Process

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Organise resources for realising the design solution | 1.1 Confirm the nature and scope of the proposed design solution<br>1.2 Research resources required for developing the design concept to implementation stage<br>1.3 Investigate different factors impacting the selection and use of resources<br>1.4 Select and prepare resources based on research and other |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | legislative or organisational requirements |
| 2 Test the design solution | 2.1 Experiment with a range of different techniques and processes to test the design solution<br>2.2 Evaluate, challenge and refine testing processes<br>2.3 Gain input and feedback from key stakeholders during testing<br>2.4 Accurately document outcomes of testing<br>2.5 Select final design solution based on outcomes of testing and input from others |
| 3 Develop prototype or model | 3.1 Create prototype or model based on agreed approaches<br>3.2 Select and organise materials, tools and equipment, where appropriate, according to chosen design solution<br>3.3 Expose model or prototype to quality checks and ongoing analysis, enhancement and refinement<br>3.4 Compare completed prototype or model against identified needs and other considerations and make adjustments as required |
| 4 Present prototype or model | 4.1 Identify key stakeholders design should be presented to<br>4.2 Select appropriate format for presentation based on nature of audience and design<br>4.3 Present prototype or model to optimise clarity, conciseness and appeal |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 3.4 | • Researches and accurately interprets textual information from a wide range of sources |
| Writing | 1.2, 1.3, 2.3, 2.4, 3.4, 4.3 | • Documents research, resource requirements and testing outcomes using appropriate language and formats |
| Oral Communication | 1.1, 2.3, 4.3 | • Participates in a range of verbal exchanges and presentations using appropriate tone and vocabulary to suit audience |


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| | | |
|---|---|---|
| | | • Uses active listening and questioning techniques to gain input and feedback |
| Numeracy | 1.1-1.3, 2.4, 2.5 | • Interprets and applies numeric information relevant to design solution<br>• Compares numerical data gathered from testing |
| Navigate the world of work | 1.4 | • Understands and adheres to organisational policies, procedures and legislative requirements during planning and implementation of design solution |
| Interact with others | 4.3 | • Recognises importance of taking audience, purpose and contextual factors into account when making decisions about what to communicate, with whom, why and how |
| Get the work done | 1.1-1.4, 2.1, 2.2, 2.5, 3.1-3.4, 4.1, 4.2 | • Sequences and schedules routine and complex activities, monitors implementation, and manages relevant communication<br>• Applies formal problem-solving processes when responding to unpredictable issues and challenges that arise during the testing process<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking client requirements and range of constraints into account<br>• Creates new or innovative ideas through exploration, analysis and critical thinking |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBDES501 Implement design solutions | BSBDES501A Implement design solutions | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBDES501 Implement design solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- undertake critical analysis, testing and development of a model, prototype or aspect of a design solution to meet an identified need
- present model to key stakeholders using the most appropriate best practice methods.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the elements and principles of design and their application in relevant design context
- describe key features of the wider industry, with the economic, social and historical context for the design solution
- discuss design trends and technologies including other designs and the work of other design practitioners in the relevant context
- summarise sources of information that support the development of technical and other knowledge
- describe the technical expertise, resources, materials, tools, equipment, techniques and industry processes required for the area the design solutions are being implemented in.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the design process field of work and include access to:

- other people to reflect the collaborative nature of the design process


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- resources required to test a design solution in a given industry context including materials, tools, equipment and expertise.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBDES502 Establish, negotiate and refine a design brief

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to work proactively with a client or commissioning organisation to develop and negotiate a design brief.

It applies to individuals working in any industry or design context where the designer plays a key role in determining the scope and nature of work required. Establishment, negotiation and refinement of a design brief requires the integration of highly-developed creative thinking, communication and planning skills in a process that may not be linear. Adaptability and effective responses to change and new ideas are crucial.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Design – Design Process

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Establish design requirements | 1.1 Identify and make appropriate contact with relevant stakeholders for the design project, in addition to the client<br>1.2 Identify and source information and references relevant to the design project<br>1.3 Undertake critical analysis of sources and extract key information to inform the design project |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Liaise with client and other key stakeholders to determine overall objectives and parameters for the design project<br>1.5 Proactively seek, review and act on information needed to inform constructive communication with client<br>1.6 Build trust and respect between self and client through effective communication and demonstration of professional integrity |
| 2 Develop and refine design brief | 2.1 Develop concepts and ideas for inclusion in design brief, taking account of overall objectives and parameters<br>2.2 Undertake own analysis of concept and challenge ideas and approaches taken to ensure responsiveness to project needs<br>2.3 Present ideas in an appropriate format/medium and seek feedback from key stakeholders<br>2.4 Use effective communication techniques to generate discussion, debate and critical analysis<br>2.5 Re-evaluate and refine options based on own analysis and discourse with others<br>2.6 Establish and agree on final nature and scope of design brief with client and accurately document details |
| 3 Negotiate terms and conditions | 3.1 Negotiate and agree terms and conditions of brief in accordance with relevant organisational and professional standards<br>3.2 Clarify, agree and document roles and responsibilities of those involved in the project<br>3.3 Confirm agreements in writing in accordance with organisational requirements<br>3.4 Identify the need for specialist advice when developing formal agreements or contracts, and seek appropriate assistance |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 1.3, 2.2, 2.5 | • Identifies and interprets textual information from |


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| | | |
|---|---|---|
| | | various sources to develop ideas and concepts |
| Writing | 1.1, 1.3-1.5, 2.1-2.3, 2.6, 3.1-3.3 | • Develops a range of documents using appropriate vocabulary, context and formatting for different audiences |
| Oral Communication | 1.1, 1.4-1.6, 2.3, 2.4, 2.6, 3.1, 3.2 | • Participates in discussions to elicit views of others by asking questions and listening to responses<br>• Presents ideas and seeks feedback from others using appropriate tone, vocabulary and language structures |
| Numeracy | 1.2-1.4 | • Interprets and applies numeric information relevant to design brief |
| Navigate the world of work | 1.2, 1.3, 3.1, 3.3, 3.4 | • Identifies and adheres to organisational policies and procedures, industry standards and legislative requirements during planning and design of design solution |
| Interact with others | 1.1, 1.4-1.6, 2.3, 2.4, 2.6, 3.1, 3.4 | • Uses appropriate communication conventions and protocols to seek information from stakeholders<br>• Uses a range of collaborative techniques to clarify and refine ideas and negotiate agreeable outcomes with others |
| Get the work done | 1.1-1.3, 1.5, 2.1, 2.2, 2.5, 3.2 | • Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Applies formal problem-solving processes when responding to unpredictable issues and challenges that arise during the testing process<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking client and organisational requirements and possible constraints into account<br>• Generates new or innovative ideas or concepts through exploration, analysis and critical thinking |

# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Information and references relevant to the design brief must include consideration of: | • legislative and regulatory context<br>• financial/budgetary information<br>• organisational materials<br>• technical reports/data. |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBDES502 Establish, negotiate and refine a design brief | BSBDES502A Establish, negotiate and refine a design brief | Updated to meet Standards for Training Packages<br><br>Minor edit to clarify meaning of PC 3.4 | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBDES502 Establish, negotiate and refine a design brief

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop and finalise at least TWO design briefs for a specific industry purpose
- demonstrate highly-developed interpersonal skills, self-evaluation techniques and the ability to seek expert advice when required.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss the legal issues that affect negotiations and contracts in the relevant work context
- explain the design process within the specific industry context/design discipline
- compare and contrast the scope, nature and potential variations that occur within design briefs relevant to a specific context
- identify sources of information to assist the development of design concepts within a specific industry context.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the design process field of work and include access to:

- appropriate equipment and media to communicate and present ideas and concepts
- sources of information relevant to industry context
- interaction with others to reflect the collaborative nature of the work, and communication and negotiation skills required.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBDES601 Manage design realisation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage the process of taking a design from concept to final realisation or production. It has a strong focus on planning, implementation and monitoring skills, combined with a sound knowledge of design and production issues and challenges in a given context.

It applies to individuals working in any industry context or design discipline who take responsibility for turning design concept into reality – a product or service of value to the end-user. This person could be an individual designer-maker or a designer working as part of a larger design/production team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Design – Design Process

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Plan realisation of design | 1.1 Collect, analyse and maintain relevant information on the design<br>1.2 Discuss and agree on standards of work and monitoring requirements with appropriate stakeholders<br>1.3 Develop clear plan and schedule for design realisation, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | including key roles and responsibilities linked to timelines and budget |
| 2 Implement and monitor realisation of design | 2.1 Organise and/or allocate resources to achieve realisation of design within required standards, timeframes and budget<br>2.2 Liaise with others involved in design realisation to ensure obligations and quality standards are met within time, budget and technical resources<br>2.3 Maintain accurate, relevant and complete documentation in accordance with agreed standards<br>2.4 Monitor process to ensure integrity of design is maintained at all times, including through the process of challenging and interrogating own design work<br>2.5 Promptly identify difficulties or problems that arise in relation to realisation of design and take action to rectify situation |
| 3 Liaise and negotiate with stakeholders | 3.1 Establish and maintain appropriate communication channels with relevant stakeholders<br>3.2 Proactively seek and provide information to facilitate effective design realisation<br>3.3 Adhere to agreed terms and conditions or negotiate appropriate changes in light of changed circumstances<br>3.4 Negotiate and agree on revisions with relevant parties in a professional manner, to enhance quality of outcome |
| 4 Complete design process | 4.1 Finalise design outcomes in accordance with terms and conditions<br>4.2 Seek feedback from key stakeholders on finished design and make final adjustments as agreed<br>4.3 Evaluate completed design in relation to own work and overall process, to inform future practice |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 2.3 | • Collates and analyses textual information from a range of sources relevant to the design realisation |
| Writing | 2.3, 3.1, 3.2, 4.3 | • Produces documentation using appropriate structure, language and context to articulate own ideas and positions |
| Oral Communication | 1.2, 3.2-3.4, 4.2 | • Articulates clearly using specific language and appropriate tone to convey information<br>• Uses active questioning and listening techniques to confirm understanding |
| Numeracy | 1.3, 2.1 | • Interprets and uses numeric information in budgets and to determine work schedules |
| Navigate the world of work | 2.3, 3.3, 4.1 | • Works independently and collectively within broad parameters, with a strong sense of responsibility and ownership of plans, decisions and outcomes<br>• Adheres to organisational policies and procedures |
| Interact with others | 1.2, 2.2, 3.1, 3.2, 3.4 | • Recognises the importance of taking audience, purpose and contextual factors into account when making decisions about what to communicate, with whom, why and how<br>• Fosters a collaborative culture within own sphere of influence, facilitating a sense of cohesion and commitment |
| Get the work done | 1.1, 1.3, 2.1, 2.4, 2.5 | • Takes responsibility for planning and organising tasks to meet workplace deadlines, including those tasks that require liaison with other people<br>• Applies formal problem-solving processes when responding to unpredictable issues and challenges that arise during the design process<br>• Uses each experience to reflect on how variables impact outcomes to inform future practices |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBDES601 Manage design realisation | BSBDES601A Manage design realisation | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBDES601 Manage design realisation

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- produce a design according to all brief requirements
- demonstrate highly-developed interpersonal and negotiation skills to deliver the finished product.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline key responsibilities of relevant personnel in this context
- describe best practices when dealing with setbacks in the production process
- explain production processes in a particular industry context or discipline including required materials, tools and equipment.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the design process field of work and include access to:

- resources, tools, materials and equipment required for realising a design in a specific context
- a design concept that the candidate can take to realisation stage
- other people to reflect the collaborative nature of the work.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBDES602 Research global design trends

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to research and critically evaluate global design trends. The focus is on research and analysis of information and ideas at a complex level, plus the evaluation and extension of the individual's professional skills.

It applies to individuals who need to maintain a current and comprehensive knowledge of global design trends to inform their own professional practice. Although predominantly for designers, this unit may also be relevant to those who work in related management, marketing and production areas.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Design – Design Process

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Research design trends | 1.1 Analyse and select formal and informal research strategies to source information on global design trends<br>1.2 Identify and explore new and alternative sources<br>1.3 Evaluate the credibility of information gathered and ensure research scope is sufficiently broad |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2 Analyse design trends to inform own practice | 2.1 Use information to challenge and extend own perspectives and ways of thinking<br>2.2 Examine and assess implications and consequences of design trends on own work<br>2.3 Use critical analysis to identify creative or commercial opportunities presented by emerging trends and technologies<br>2.4 Develop systems to identify and respond to future opportunities |
| 3 Develop and articulate positions and ideas | 3.1 Develop substantiated positions and ideas on global design trends<br>3.2 Generate informed discussion, debate and critical analysis with peers and colleagues<br>3.3 Use debate and feedback to challenge and refine own positions |
| 4 Extend own design skills | 4.1 Proactively identify and use opportunities presented by research to extend own design skills<br>4.2 Re-evaluate and refine approaches to work in the context of current and emerging trends<br>4.3 Use practice, discussion and ongoing evaluation to continuously improve skills |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 4.1-4.3 | • Plans and implements strategies to improve and extend own knowledge and skills |
| Reading | 1.1-1.3, 2.1, 2.2 | • Analyses and synthesises complex and varied information from a range of sources |
| Writing | 2.4 | • Documents methods for identifying future opportunities using vocabulary and structure appropriate to context and purpose |
| Oral Communication | 3.2, 3.3, 4.3 | • Elicits the views others by participating in critical discourse and debate on conceptual and technical |


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| | | |
|---|---|---|
| | | design trends<br>• Uses active listening techniques to gain input and feedback |
| Navigate the world of work | 2.3 | • Keeps abreast of trends and issues, appreciating the world of work is dynamic, with changing needs and priorities, and that career development is not a linear process that can be closely controlled |
| Get the work done | 1.1-1.3, 2.1-2.4, 3.1, 3.3, 4.2 | • Takes responsibility for planning and organising tasks required to conduct required research, including how to link with the work of others<br>• Keeps abreast of innovations and good practice beyond own context, borrowing, adapting, combining and redesigning for own purposes<br>• Uses reflection and feedback from others to evaluate outcomes to inform future practices<br>• Actively identifies digital systems, devices and applications with potential to meet current and/or future needs |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBDES602 Research global design trends | BSBDES602A Research global design trends | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBDES602 Research global design trends

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- conduct research on a complex range of design issues, trends and ideas
- document the analysis, critique and synthesis of complex sources to develop own positions and ideas
- use opportunities to refine own design skills.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe broad global design trends that apply to all design disciplines
- discuss the business implications/consequences of adopting trends and emergent technologies
- compare and contrast different research methodologies and options
- outline sources of information on global design, design trends and broader references that may inform emerging and innovative design practice
- critique specific current and emerging design technologies and trends (at a global level) in at least one area of design.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the design process field of work and include access to a current and varied range of familiar and unfamiliar information sources.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBEBU401 Review and maintain a website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake data analysis, review website content, and update and maintain a website.

It applies to individuals who have knowledge of the relationship between a website and the core functions of an organisation. They also have working knowledge and skills to perform basic updates to website content. They may provide administrative support within an organisation or be other individuals who have been delegated this responsibility.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Information and Communications Technology – E-Business

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Review website content and use | 1.1 Monitor and analyse customer and user feedback in accordance with organisational timelines<br>1.2 Analyse automatically collected website data and identify trends<br>1.3 Make recommendations on changes to website and its content in response to feedback and data analysis, and approve changes scheduled for implementation |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.4 Review cost implications of the recommended changes to determine their viability |
| 2 Update website | 2.1 Replace superseded and inaccurate information with current information and add additional material in accordance with organisational requirements<br>2.2 Follow protocols for ensuring the accuracy and authenticity of information<br>2.3 Remove services no longer available or required and add new ones in accordance with organisational requirements<br>2.4 Check offline information against that posted on the website and rectify any discrepancies in accordance with organisational timelines<br>2.5 Follow security procedures for updating the website |
| 3 Carry out non-technical site maintenance | 3.1 Analyse user feedback to confirm website faults are not user issues<br>3.2 Rectify faults and make improvements to website in response to user feedback approved by the organisation<br>3.3 Add new web pages and/or active links and remove redundant pages and links in accordance with organisational requirements<br>3.4 Make website changes in response to changes in marketing strategy, in accordance with organisational requirements and consideration of cost benefits |

# Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.1, 2.3-2.5, 3.1-3.4 | • Recognises text within job specifications and work processes related to the outcomes of the job |
| Writing | 1.3, 1.4, 2.1-2.5, 3.2-3.4 | • Records key information related to the outcomes of the job |


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| | | |
|---|---|---|
| Oral Communication | 1.3, 3.2 | • Makes recommendations on changes to website content<br>• Analyses and responds to user feedback |
| Numeracy | 1.4 | • Uses basic numeracy skills to determine cost implications and viability |
| Navigate the world of work | 1.1-1.4, 2.1-2.5, 3.1-3.4 | • Accepts responsibility and ownership for the task and makes decisions on completion parameters and the need to coordinate with others<br>• Takes personal responsibility for following security procedures and meeting organisational requirements |
| Interact with others | 1.3, 3.2 | • Selects and uses appropriate conventions and protocols when communicating with clients and users in a range of work contexts |
| Get the work done | 1.1-1.4, 2.1-2.5, 3.1-3.4 | • Takes responsibility for planning, sequencing tasks for efficient and effective organisational outcomes<br>• Uses problem solving processes to identify and analyse technical issues<br>• Contributes to continuous improvement of website by applying basic principles of analytical thinking<br>• Understands the purposes, specific functions and key features of common digital systems and tools and operates them effectively to complete tasks in accordance with security requirements |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBEBU401 Review and maintain a website | BSBEBU401A Review and maintain a website | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBEBU401 Review and maintain a website

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse data to make recommendations about changes to website
- update web pages according to organisational requirements
- analyse data, identify and resolve faults, errors and/or complaints on website.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and review knowledge of key provisions of relevant legislation, regulations, and standards and codes of practice that may affect aspects of business operations
- explain basic principles of website design and maintenance
- outline online security issues.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the information and communications technology – e-business field of work. This includes access to:

networked computers

- computers and office equipment
- industry software packages
- documentation relating to analysis and strategies/policies for implementation.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBEBU501 Investigate and design e-business solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to evaluate e-business models and strategies, as well as incorporate the results of these evaluations into the design of an e-business solution.

It applies to individuals who possess skills and knowledge in a specialist business area, as well as knowledge of software and other technologies. They apply these skills and knowledge in the evaluation, selection and implementation of new strategies for business, which incorporate e-business solutions. They may be responsible for overseeing these tasks along with technical or other knowledge experts.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Information and Communications Technology – E-Business

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Investigate e-business opportunities | 1.1 Undertake a competitive analysis to determine the likely impact new capabilities will have on industry sectors and competitors<br>1.2 Complete and assess value chain analysis to identify processes |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and relationships that may benefit from the adoption of e-business solutions<br>1.3 Identify threats and opportunities to e-business implementation and evaluate potential contributions to the business<br>1.4 Conduct resource analysis to identify cost and revenue implications in developing opportunities<br>1.5 Identify and evaluate legal and ethical issues relating to e-business opportunities |
| 2 Evaluate e-business models | 2.1 Identify and analyse business-to-business, business-to-consumer, intra-organisational e-business applications and e-business models<br>2.2 Rank compatible e-business models in terms of their strengths and weaknesses, considering resourcing, technical and security requirements of each<br>2.3 Assess cost implications of implementation of e-business models<br>2.4 Determine an e-business model most appropriate in relation to business plan |
| 3 Design an e-business | 3.1 Formulate purpose, objectives and values for the e-business<br>3.2 Identify target market, and value chain structure in accordance with chosen e-business model<br>3.3 Identify and obtain technical needs and expertise required to implement e-business model<br>3.4 Investigate and develop plan to address culture change issues to manage transition to an e-business |
| 4 Implement an e-business strategy | 4.1 Develop policies and guidelines to support customers, supply chain and staff to ensure successful implementation<br>4.2 Monitor performance of business goals and adjust policies and procedures to respond to changing needs of customers, staff and supply chain<br>4.3 Review e-business systems and models, seeking feedback from users and personnel responsible for e-business implementation<br>4.4 Incorporate evaluation results and feedback to improve future e-business strategies |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.5, 2.1-2.4, 3.2-3.4, 4.1-4.4 | • Interprets a range of textual information to evaluate opportunities, possible exemplars and technical considerations |
| Writing | 1.1-1.5, 2.1-2.4, 3.1-3.4, 4.1-4.4 | • Takes personal notes and develops workplace documentation that clarifies complex ideas using language and structure to suit context and audience |
| Oral Communication | 3.3, 4.3 | • Articulates information clearly using language and tone appropriate to audience and environment<br>• Uses active listening and questioning techniques to receive feedback and confirm understanding |
| Numeracy | 1.4, 2.2, 2.3 | • Analyses numerical information to determine resources required for job |
| Navigate the world of work | 1.1-1.5, 2.1-2.4, 3.1-3.4, 4.1-4.4 | • Develops and reviews organisational procedures to achieve broader workplace goals<br>• Monitors adherence to organisational procedures and legislative requirements |
| Interact with others | 3.3, 4.3 | • Selects and uses appropriate conventions and protocols when communicating with others in a range of work contexts |
| Get the work done | 1.5, 2.1-2.4, 3.1-3.4, 4.1-4.4 | • Takes responsibility for developing and implementing organisational processes that comply with legislative requirements and achieve required outcomes<br>• Systematically gathers and analyses all relevant information and evaluates options to solve problems or make decisions<br>• Considers the effectiveness of a solution in terms of how well it met stated goals, and seeks to make improvements<br>• Investigates new and innovative ideas as a means to continuously improve work practices and processes<br>• Uses digital technologies and systems safely, legally and ethically to access, store and share information |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBEBU501 Investigate and design e-business solutions | BSBEBU501A Investigate and design e-business solutions | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBEBU501 Investigate and design e-business solutions

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and evaluate e-business opportunities involving new business models and not simply electronic versions of existing businesses
- provide supporting evidence for choice of e-business solution
- implement, monitor and evaluate an e-business solution.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the role of a value chain analysis when assessing potential e-business solutions
- identify relevant legislation, regulations, standards and codes of practice that may affect the implementation of the e-business solution
- list key features of a range of e-business models
- outline the policies and guidelines relating to the implementation of the e-business solution.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the information and communications technology – e-business field of work and include access to:

- office equipment and materials
- documentation relating to analysis and implementation
- relevant legislation, regulations and codes of practice.


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Assessors must satisfy NVR/AQTF assessor requirements.

# Links

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# BSBFIM501 Manage budgets and financial plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake financial management within a work team in an organisation. It includes planning and implementing financial management approaches, supporting team members whose role involves aspects of financial operations, monitoring and controlling finances and reviewing and evaluating effectiveness of financial management processes.

It applies to managers in a wide range of organisations and sectors who have responsibility for ensuring that work team financial resources are used effectively and are managed in line with financial objectives of the team and organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Finance - Financial Management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Plan financial management approaches | 1.1 Access budget/financial plans for the work team<br>1.2 Clarify budget/financial plans with relevant personnel within the organisation to ensure that documented outcomes are achievable, accurate and comprehensible<br>1.3 Negotiate any changes required to be made to budget/financial |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | plans with relevant personnel within the organisation<br>1.4 Prepare contingency plans in the event that initial plans need to be varied |
| 2 Implement financial management approaches | 2.1 Disseminate relevant details of the agreed budget/financial plans to team members<br>2.2 Provide support to ensure that team members can competently perform required roles associated with the management of finances<br>2.3 Determine and access resources and systems to manage financial management processes within the work team |
| 3 Monitor and control finances | 3.1 Implement processes to monitor actual expenditure and to control costs across the work team<br>3.2 Monitor expenditure and costs on an agreed cyclical basis to identify cost variations and expenditure overruns<br>3.3 Implement, monitor and modify contingency plans as required to maintain financial objectives<br>3.4 Report on budget and expenditure in accordance with organisational protocols |
| 4 Review and evaluate financial management processes | 4.1 Collect and collate for analysis, data and information on the effectiveness of financial management processes within the work team<br>4.2 Analyse data and information on the effectiveness of financial management processes within the work team and identify, document and recommend any improvements to existing processes<br>4.3 Implement and monitor agreed improvements in line with financial objectives of the work team and the organisation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.3, 3.1-3.4, 4.2, 4.3 | • Interprets and analyses information to determine activities required |


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| | | |
|---|---|---|
| Writing | 1.1, 1.4, 4.1-4.3 | • Records information in correct forms and prepares materials which convey detailed and factual content in accordance with internal procedures |
| Oral Communication | 1.2, 1.3, 2.1-2.3 | • Presents information about financial issues and requirements to a range of audiences using structure and language to suit the audience<br>• Uses active listening and questioning to clarify information and to confirm understanding |
| Numeracy | 1.1-1.3, 2.1-2.3, 3.1-3.4, 4.1-4.3 | • Uses a wide range of mathematical calculations to analyse numeric information in budgets or financial plans |
| Navigate the world of work | 2.2, 3.3, 3.4, 4.3 | • Recognises, understands and adheres to organisational requirements in undertaking own work |
| Interact with others | 1.2, 1.3, 2.1, 2.2, 3.1, 2.3, 4.2, 4.3 | • Uses a range of strategies to connect, collaborate and cooperate with other work colleagues in activities requiring collective effort and diverse skills and knowledge |
| Get the work done | 1.1, 1.4, 2.3, 3.1-3.4, 4.1-4.3 | • Uses logical processes in planning, implementing and evaluating complex tasks and developing alternative strategies in achieving goals and timelines<br>• Uses a range of digital technologies to access, filter, compile, integrate and logically present complex information from multiple sources |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBFIM501 Manage budgets and financial plans | BSBFIM501A Manage budgets and financial plans | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBFIM501 Manage budgets and financial plans

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use financial skills to work with and interpret budgets, ageing summaries, cash flow, petty cash, Goods and Services Tax (GST), and profit and loss statements
- communicate with relevant people to clarify budget/financial plans, negotiate changes and disseminate information
- prepare, implement and modify financial contingency plans
- monitor expenditure and control costs
- support and monitor team members
- report on budget and expenditure
- review and make recommendations for improvements to financial processes
- meet record keeping requirements for the Australian Taxation Office (ATO) and for auditing purposes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe basic accounting principles
- identify and explain the relevant legislation and current requirements of the Australian Taxation Office, including the Goods and Services Tax (GST)
- explain the key requirements for financiall record keeping and auditing
- describe the principles and techniques involved in managing:
  - budgeting
  - cash flows
  - electronic spreadsheets


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- GST
- ledgers and financial statements
- profit and loss statements.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the financial management field of work and include access to:

- resources and documentation used in the workplace
- workplace policies and procedures
- workplace budgets and financial plans
- business technology
- case studies and, where available, real situations.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBINN601 Lead and manage organisational change

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes skills and knowledge required to determine strategic change requirements and opportunities; and to develop, implement and evaluate change management strategies.

It applies to managers with responsibilities that extend across the organisation or across significant parts of a large organisation. They may have a dedicated role in human resources management, human resources development, or work in a strategic policy or planning area.

The unit takes a structured approach to change management and applies to people with considerable work experience and organisational knowledge.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Creativity and innovation – innovation

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Identify change requirements and opportunities | 1.1 Identify strategic change needs through an analysis of organisational objectives<br>1.2 Review existing policies and practices against strategic objectives to identify where changes are required |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Monitor the external environment to identify events or trends that impact on the achievement of organisational objectives<br>1.4 Identify major operational change requirements due to performance gaps, business opportunities or threats, or management decisions<br>1.5 Review and prioritise change requirements or opportunities with relevant managers<br>1.6 Consult stakeholders, specialists and experts to assist in the identification of major change requirements and opportunities |
| 2 Develop change management strategy | 2.1 Undertake cost-benefit analysis for high priority change requirements and opportunities<br>2.2 Undertake risk analysis and apply problem solving and innovation skills to identify barriers to change and agree and record mitigation strategies<br>2.3 Develop change management project plan<br>2.4 Obtain approvals from relevant authorities to confirm the change management process<br>2.5 Assign resources to the project and agree reporting protocols with relevant managers |
| 3 Implement change management strategy | 3.1 Develop communication or education plan, in consultation with relevant groups and individuals, to promote the benefits of the change to the organisation and to minimise loss<br>3.2 Arrange and manage activities to deliver the communication or education plans to relevant groups and individuals<br>3.3 Consult with relevant groups and individuals for input into the change process<br>3.4 Identify and respond to barriers to the change according to risk management plans<br>3.5 Action interventions and activities set out in project plan according to project timetable<br>3.6 Activate strategies for embedding the change<br>3.7 Conduct regular evaluation and review and modify project plan where appropriate to achieve change program objectives |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.1, 2.2 | • Interprets detailed information that may deal with complex ideas related to issues both within and outside the workplace context |
| Writing | 2.1, 2.2, 2.3, 2.4, 3.1 | • Uses clear and precise language to develop information about objectives, requirements, activities and recommendations<br>• Develops complex plans and strategies in appropriate format for the audience and purpose |
| Oral Communication | 1.6, 2.2, 2.4, 2.5, 3.3 | • Discusses and seeks information using appropriate structure and language for the particular audience<br>• Uses questioning and active listening to clarify or confirm understanding |
| Numeracy | 2.1, 2.3, 2.3 | • Interprets, analyses and presents numeric/financial information in complex documents |
| Navigate the world of work | 1.1-1.6, 2.4, 2.5, 3.1, 3.2 | • Takes a lead role in the development of organisational strategic goals and associated roles and responsibilities |
| Interact with others | 1.5, 1.6, 2.4, 2.5, 3.1-3.3 | • Uses a variety of communication tools and strategies to build and maintain effective working relationships<br>• Uses inclusive and collaborative techniques to seek feedback, negotiate and consult with a range of stakeholders |
| Get the work done | 1.1-1.5, 2.1-2.5, 3.1, 3.2, 3.4-3.7 | • Plans, organises and implements activities required to achieve strategic priorities and outcomes, including consulting with others and sequencing events to minimise uncertainty for staff<br>• Uses problem-solving skills to identify and analyse issues or barriers, and develop responses<br>• Develops new and innovative ideas through exploration and lateral thinking |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBINN601 Lead and manage organisational change | BSBINN601B Manage organisational change | Updated to meet Standards for Training Packages<br>Edits to clarify intent of Performance Criteria<br>Title change | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBINN601 Lead and manage organisational change

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and interpret information about the organisation's internal and external environment and consult with stakeholders to identify requirements and opportunities for changes that support organisational objectives
- prioritise opportunities for changes with input from managers
- develop a change management project plan for the priority changes incorporating resource requirements, risk management and timelines
- develop strategies to communicate or educate the changes and embed them
- obtain approvals and agree reporting protocols with relevant managers and implement the plan including addressing barriers to change
- review and evaluate the change management project plan and modify as needed to achieve objectives.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the change management process or cycle and strategies for communicating and embedding change
- explain how organisational behaviour and the external environment can impact on change strategies
- describe the components of a change management project plan
- list potential barriers to change and explain possible strategies to address barriers.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the creativity and innovation and include access to:

- workplace documentation and resources
- office equipment, materials and software packages
- case studies or, where available, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBINN801 Lead innovative thinking and practice

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to generate, lead and sustain innovative organisational thinking and practice.

It applies to individuals who initiate and lead innovation in any industry or community context. Each organisation's thinking and practice will be different depending on its core business, purpose, size, complexity and broader operating context.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Creativity and Innovation – Innovation

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Generate innovative thinking and creativity | 1.1 Research and use a range of techniques and tools to generate new ideas and thinking<br>1.2 Research and analyse trends shaping organisation's current and future thinking and practice<br>1.3 Introduce and promote creative thinking techniques to foster personal and team innovation<br>1.4 Evaluate overall context for individual and collective |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | innovative thinking and creativity<br>1.5 Research and analyse specific conditions for innovation and issues that impact on individual and collective innovative thinking and creativity<br>1.6 Research and review innovation drivers and enablers |
| 2 Lead innovative practices | 2.1 Develop personal leadership style to model positive innovative thinking and practice<br>2.2 Review, challenge and refine own style and practice in relation to modelling and supporting innovation<br>2.3 Assess and determine the requirements to promote sustainable innovative activity for the operational context and people involved<br>2.4 Devise and implement most appropriate means to promote knowledge transfer<br>2.5 Identify, evaluate and manage risks associated with innovation within an organisation |
| 3 Generate and support a culture of innovation | 3.1 Introduce and promote innovative practices, processes, products or services appropriate to audience and organisational requirements<br>3.2 Establish ways to capture, communicate and share innovative ideas and practices<br>3.3 Initiate and foster communication, consultation and team development approaches that support innovation<br>3.4 Identify, assess and provide adequate resources for innovation to occur<br>3.5 Develop and apply strategies to foster a workplace culture capable of encouraging innovation<br>3.6 Establish mechanisms at system and process level that can support innovation |
| 4 Sustain innovative thinking and practice | 4.1 Develop strategies to make innovation an integral part of organisational activity<br>4.2 Develop and monitor processes to ensure ongoing awareness of individual and collective contributions to innovative thinking and practice<br>4.3 Analyse potential barriers and risks to innovation and devise strategies to respond<br>4.4 Analyse and reflect on innovation performance as a basis for developing strategies for improvement |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 2.1, 2.2, 4.4 | • Evaluates and reflects on personal effectiveness to develop strategies to enhance own performance |
| Reading | 1.1, 1.2, 1.5, 1.6 | • Identifies, analyses, interprets and evaluates visual and textual information from a range of sources to identify innovation strategies, practices and trends |
| Writing | 1.1, 1.2, 1.5, 1.6, 3.2 | • Uses clear and precise language to document research findings for reference purposes<br>• Develops complex plans, strategies and systems to integrate innovation into the organisation using appropriate formats for the audience and purpose |
| Oral Communication | 1.3, 3.2, 3.3, 3.5 | • Discusses, presents and seeks information using appropriate structure and language for the particular audience<br>• Uses questioning and active listening to encourage discussion and to clarify or confirm understanding |
| Numeracy | 1.1, 1.2, 1.5, 1.6, 3.2 | • Interprets, analyses and presents numeric/financial information in complex documents |
| Navigate the world of work | 2.1, 2.2, 2.3, 2.5, 3.1, 3.5, 4.1 | • Understands how own role meshes with others and contributes to broader work goals<br>• Leads in the development of strategies to integrate innovative practices into the organisation |
| Interact with others | 1.3, 3.2, 3.3, 3.5 | • Uses a variety of relevant communication tools and strategies to build and maintain effective working relationships<br>• Uses inclusive and collaborative techniques to communicate, negotiate and consult effectively with a range of stakeholders<br>• Actively seeks the perspectives of others as part of work role |
| Get the work done | 1.1,1.2, 1.3-1.6, 2.3-2.5, 3.2-3.6, 4.1-4.4 | • Plans, develops, implements and monitors practical strategies to introduce and support innovation in the workplace<br>• Develops new and innovative ideas through exploration, evaluation, analysis and critical thinking |


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| | | |
|---|---|---|
| | | • Uses formal analytical and lateral thinking techniques to identify issues, generate and evaluate possible solutions, and select most appropriate option |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBINN801 Lead innovative thinking and practice | BSBINN801A Lead innovative thinking and practice | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBINN801 Lead innovative thinking and practice

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use various techniques and tools to stimulate creative or innovative thinking
- research, review and critically analyse trends in thinking and emerging practices as they relate to an organisation's current thinking and practices
- develop own capacity to lead innovative thinking and practice in an organisational context
- complete a workplace project or case study to demonstrate a comprehensive understanding and application of key concepts, current theories and processes for introducing, communicating, promoting, supporting and sustaining innovative thinking and practices in an organisational context.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- compare and contrast current and past theories and thinking about innovation
- explain how theory and thinking on innovation and creativity can contribute to applied practice
- discuss the impact of leadership style on innovation in organisations, including how specific approaches may encourage or inhibit innovation
- discuss the relevance of organisational and industry context on innovation
- analyse the internal and external conditions or factors that impact on organisational innovation
- outline strategies for identifying, assessing and managing risks associated with innovation
- provide examples of innovation drivers in an organisation
- provide examples of innovation enablers in an organisation


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- list and describe mechanisms at system or process level that can support innovative practices
- discuss typical challenges and barriers to innovation within an organisation and ways of overcoming these challenges and barriers.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the creativity and innovation field of work and include access to:

- workplace documentation and resources
- office equipment and materials
- case studies or, where available, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBIPR301 Comply with organisational requirements for protection and use of intellectual property

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to assist with the protection and lawful use of an organisation's intellectual property and to avoid intellectual property infringement. It focuses on supporting the maintenance of an organisation's policies and procedures for the protection of intellectual property and avoidance of intellectual property infringement.

It applies to individuals who operate in a broad range of work roles and contexts and whose role may include assisting the organisation to comply with intellectual property requirements for the protection and use of intellectual property.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Regulation, Licensing and Risk – Intellectual Property

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify organisational expectations for complying with intellectual property requirements | 1.1 Identify the various types of existing and potential intellectual property within the organisation<br>1.2 Identify and access the organisation's intellectual property policies, procedures and information<br>1.3 Identify own role in protecting the organisation's intellectual |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | property, using intellectual property and avoiding intellectual property infringement<br>1.4 Provide information and advice to relevant internal and external stakeholders about how the organisation's intellectual property policies and procedures operate, within limits of job role |
| 2. Support policies and procedures for the protection and use of intellectual property | 2.1 Assist with the development and/or implementation of policies and procedures for the protection and use of the organisation's intellectual property according to the type of protection required<br>2.2 Assist with the development and/or implementation of policies and procedures to prevent infringement of others' intellectual property<br>2.3 Assist in the maintenance of intellectual property policies and procedures<br>2.4 Contribute to the identification of potential problems and opportunities for improvement in the operation of the intellectual property policies and procedures and make recommendations to appropriate personnel for action |
| 3. Contribute to recommendations about non-compliance issues with intellectual property requirements | 3.1 Contribute to the identification of any potential non-compliance or intellectual property infringement issues, either internally or externally<br>3.2 Contribute to recommendations to appropriate personnel about actions to overcome non-compliance issues<br>3.3 Alert appropriate personnel to areas of potential intellectual property infringement or risk |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.1-2.4, 3.1-3.3 | • Interprets and comprehends organisational texts related to intellectual property requirements |
| Writing | 1.4, 2.1-2.4, 3.1-3.3 | • Records information in accordance with requirements<br>• Develops texts using language appropriate to audience needs |


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| | | |
|---|---|---|
| Oral Communication | 1.4, 2.4, 3.1-3.3 | • Provides information using language and terminology appropriate to audience<br>• Obtains information from others by listening and questioning |
| Navigate the world of work | 1.3, 1.4, 2.1, 2.2 | • Understands and takes responsibility for adhering to legal and regulatory compliance with respect to own work |
| Interact with others | 1.4, 2.1-2.4, 3.1-3.3 | • Follows accepted communication practices when seeking or providing advice about intellectual property<br>• Collaborates with others to achieve joint outcomes |
| Get the work done | 1.1, 1.2, 1.4, 2-1-2.4, 3.1-3.3 | • Plans and implements a range of tasks directly related to own role, seeking assistance where required<br>• Uses problem solving skills to identify and respond to intellectual property compliance issues |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBIPR301 Comply with organisational requirements for protection and use of intellectual property | BSBIPR301A Comply with organisational requirements for protection and use of intellectual property | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBIPR301 Comply with organisational requirements for protection and use of intellectual property

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the different types of intellectual property within the organisation
- identify, correctly use and/or update an organisation's intellectual property policies and procedures
- identify the potential of non-compliance issues within an organisation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe different types of intellectual property and the key characteristics of each
- outline the relevant organisational policies and procedures in relation to intellectual property
- describe the range of intellectual property residing with the organisation
- describe the relevant legislative requirements as they apply to the job role.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the regulation, licensing and risk – intellectual property field of work and include access to:

- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies and, where possible, real situations


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- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBLDR402 Lead effective workplace relationships

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit defines skills, knowledge and outcomes required to use leadership to promote team cohesion. It includes motivating, mentoring, coaching and developing the team and forming the bridge between the management of the organisation and team members.

This unit applies to team leaders, supervisors and new or emerging managers where leadership plays a role in developing and maintaining effective workplace relationships. It applies in any industry or community context.

At this level work will normally be carried out within routine and non-routine methods and procedures, which require planning and evaluation and leadership and guidance of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership - Leadership

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Collect, analyse and communicate information and ideas | 1.1 Collect relevant information from appropriate sources and analyse and share with the work team to improve work performance<br>1.2 Communicate ideas and information in a manner which is appropriate and sensitive to the cultural and social diversity of the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | audience and any specific needs<br>1.3 Lead consultation processes to encourage employees to contribute to issues related to their work, and promptly relay feedback to the work team in regard to outcomes<br>1.4 Seek and value contributions from internal and external sources in developing and refining new ideas and approaches<br>1.5 Implement processes to ensure that issues raised are resolved promptly or referred to relevant personnel as required |
| 2. Develop trust and confidence as leader | 2.1 Treat all internal and external contacts with integrity, respect and empathy<br>2.2 Use the organisation's social, ethical and business standards to develop and maintain effective relationships<br>2.3 Gain and maintain the trust and confidence of colleagues, customers and suppliers through competent performance<br>2.4 Adjust interpersonal styles and methods to meet organisation's social and cultural environment<br>2.5 Lead and encourage other members of the work team to follow examples set according to organisation's policies and procedures |
| 3. Develop and maintain networks and relationships | 3.1 Use networks to identify and build relationships<br>3.2 Use networks and other work relationships to provide identifiable benefits for the team and organisation |
| 4. Manage difficulties into positive outcomes | 4.1 Identify and analyse difficulties and take action to rectify the situation within the requirements of the organisation and relevant legislation<br>4.2 Guide and support colleagues to resolve work difficulties<br>4.3 Regularly review and improve workplace outcomes in consultation with relevant personnel<br>4.4 Manage poor work performance within the organisation's processes<br>4.5 Manage conflict constructively within the organisation's processes |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*


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| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1 | • Collects, analyses and evaluates textual information from a range of resources to inform improvement strategies |
| Oral Communication | 1.2, 1.3, 2.4, 2.5, 4.2 | • Selects or adjusts communication style to maintain effectiveness of interaction and build and maintain engagement consistent with organisational requirements |
| Navigate the world of work | 2.2, 2.5, 4.1, 4.4, 4.5 | • Recognises and follows legislative and organisational requirements relevant to own role |
| Interact with others | 1.1-1.4, 2.1, 2.3, 2.5, 3.1, 3.2, 4.2, 4.5 | • Selects and uses appropriate conventions and protocols when communicating with diverse stakeholders<br>• Adapts personal communication style to build trust and positive working relationships and to show respect for the opinions, values and particular needs of others<br>• Plays a lead role in situations requiring effective collaboration, demonstrating conflict resolution skills and ability to engage and motivate others |
| Get the work done | 1.1, 1.5, 4.1, 4.3 | • Plans and implements activities and processes to manage and review work performance<br>• Systematically gathers and analyses all relevant information to formulate and evaluate possible solutions to difficulties |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBLDR402 Lead effective workplace relationships | BSBWOR401A Establish effective workplace relationships | Updated to meet Standards for Training Packages<br>Title change<br>Minor edits to clarify intent of performance criteria | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBLDR402 Lead effective workplace relationships

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- access and analyse information to achieve planned outcomes
- apply techniques for resolving problems and conflicts and dealing with poor performance within organisational and legislative requirements
- review and improve workplace outcomes in consultation with relevant personnel
- adjust interpersonal style and communications to respond to cultural and social diversity
- apply relationship management and communication skills with a range of people that:
  - demonstrate integrity, respect, empathy and cultural sensitivity and promote trust
  - forge effective relationships with internal and/or external people and help to maintain these networks
  - encourage participation and foster contribution of and respect for ideas and feedback
  - provide support to colleagues to resolve difficulties.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- give examples of how work relationships, and the cultural and social environment, can support or hinder achieving planned outcomes
- explain techniques for developing positive work relationships and building trust and confidence in a team including interpersonal styles, communications, consultation, cultural and social sensitivity, networking
- explain the impact of legislation and organisational policies on workplace relationships
- describe a range of methods and techniques for communicating information and ideas to a range of stakeholders
- outline problems solving methods


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- explain methods to resolve workplace conflict
- explain methods to manage poor work performance
- explain how to monitor, analyse and introduce ways to improve work relationships.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership field of work and include access to:

- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBLDR803 Develop and cultivate collaborative partnerships and relationships

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with BSB Business Services Training Package Version 1.1.<br>Version created to correct mapping table information |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish collaborative partnerships and relationships with business and industry stakeholders.

This unit covers communicating to influence others, cultivating new and existing partnerships, establishing positive collaborative relationships, leading the establishment of a partnership program and establishing reporting mechanisms.

It applies to people who use cognitive and creative skills to review, critically analyse, consolidate and synthesise knowledge, in order to generate ideas and provide solutions to complex problems. They use communication skills to demonstrate their understanding of theoretical concepts and to transfer knowledge and ideas to others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership - Leadership

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|


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| **ELEMENT** | **PERFORMANCE CRITERIA** |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Communicate to influence relevant individuals and stakeholders | 1.1 Generate trust, confidence and support from relevant stakeholders by demonstrating a high standard of personal performance and conduct<br>1.2 Implement communication strategies to represent the organisation positively to media, local community and stakeholders<br>1.3 Make decisions in consultation with relevant stakeholders and relevant individuals where appropriate<br>1.4 Use a range of influencing strategies to increase commitment from staff and stakeholders to achieve organisational requirements and to contribute to desired culture<br>1.5 Undertake selected community and/or professional engagements that project a positive image of the organisation to the broader community and stakeholders |
| 2. Cultivate new and existing partnerships with stakeholders | 2.1 Establish outcomes to be achieved from the partnership<br>2.2 Analyse and apply models for effective consultation and collaboration within partnerships<br>2.3 Cultivate collaborative communities and partnerships through application of a range of communication solutions<br>2.4 Forge relationships, collaborative communities or partnerships between organisations |
| 3. Establish positive collaborative relationships | 3.1 Establish processes that contribute to the creation and maintenance of a positive culture that embraces collaboration<br>3.2 Establish processes to resolve conflict in a fair, equitable and collaborative manner<br>3.3 Organise and allocate work activities in a cost effective and equitable manner with clear, quantifiable and agreed performance standards<br>3.4 Encourage staff to undertake activities that develop their personal competence and performance<br>3.5 Empower individuals to develop their own ways of working within agreed boundaries of competence, cultural, diversity and organisational and legal requirements<br>3.6 Establish indicators and feedback processes that can be used to evaluate the health of the work environment |
| 4. Lead establishment of a | 4.1 Identify and address relevant organisational policies and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| partnership program | procedures in partnership plans<br>4.2 Identify and incorporate relevant legal requirements into planning<br>4.3 Form partnerships using collaborative and consultative processes involving public and/or private sector enterprises<br>4.4 Plan and allocate resource requirements to accomplish a partnership program<br>4.5 Establish relevant organisational policies and procedures relating to partnerships |
| 5. Establish reporting mechanisms for partnership program | 5.1 Establish reporting systems for reporting results against planned partnership outcomes<br>5.2 Implement reporting systems to map progress against partnership outcomes |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.2 | • Sources, evaluates and critiques ideas and information from a range of complex texts |
| Writing | 2.1, 3.1, 3.2, 3.6, 4.4, 4.5, 5.1 | • Develops texts dealing with complex concepts using specialised and detailed language to convey strategy context and intent and requirements in accordance organisational requirements |
| Oral Communication | 2.3, 3.4, 4.3 | • Leads discussions using language and non-verbal features to suit the audience<br>• Uses active listening and questioning to seek the views and opinions of others |
| Numeracy | 3.3 | • Selects and uses familiar mathematical techniques to determine costs and benefits associated with strategic resource decisions |
| Navigate the world of work | 3.5, 4.1, 4.2 | • Takes a lead role in the development of organisational goals, roles and responsibilities<br>• Leads adherence to organisational policies, procedures and legal requirements and considers own role in terms |


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| | | |
|---|---|---|
| | | of its contribution to broader goals of the organisation |
| Interact with others | 1.1, 1.4, 2.3, 2.4, 3.2, 3.4, 4.3 | • Plays a lead role in building effective collaboration and trust, demonstrating high level conflict resolution skills and ability to engage and motivate others<br>• Identifies and uses a variety of appropriate conventions and protocols when communicating with colleagues and external stakeholders |
| Get the work done | 1.2, 1.3, 1.5, 2.1, 3.1, 3.3, 3.6, 4.4, 5.2 | • Develops flexible plans for complex, high impact activities with strategic implications that involve a diverse range of stakeholders with potentially competing demands<br>• Monitors agreed outcomes and required indicators |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBLDR803 Develop and cultivate collaborative partnerships and relationships | BSBREL701A Develop and cultivate collaborative partnerships and relationships | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBLDR803 Develop and cultivate collaborative partnerships and relationships

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with BSB Business Services Training Package Version 1.1.<br>Version created to correct mapping table information |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate and model skills and knowledge to foster partnerships, conduct stakeholder consultation and use strategic and personally enhancing communication skills
- develop collaborative approaches to enhance individual, team and organisational outcomes
- initiate and implement partnerships in line with relevant regulatory, employment and organisational requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the legislative and regulatory context of the organisation
- outline the organisation's mission, purpose, values, objectives and strategies
- explain techniques that cultivate collaborative relationships and partnerships
- describe data collection methods
- explain the external context including social, political, economic and technological developments
- explain emotional intelligence and its relationship to individual and team effectiveness
- explain organisational transformation and the management of the stages of change.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership field of work and include access to:

- relevant legislation, regulations, standards and codes
- workplace documents including business strategic plans, policies and procedures
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBMGT401 Show leadership in the workplace

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to lead teams and individuals by modelling high standards of conduct to reflect the organisation's standards and values.

It applies to individuals who are making the transition from being a team member to taking responsibility for the work and performance of others and providing the first level of leadership within the organisation. These managers have a strong influence on the work culture, values and ethics of the teams they supervise.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Model high standards of management performance and behaviour | 1.1 Ensure management performance and behaviour meets the organisation’s requirements<br>1.2 Ensure management performance and behaviour serves as a positive role model for others<br>1.3 Develop and implement performance plans in accordance with organisation’s goals and objectives<br>1.4 Establish and use key performance indicators to meet |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | organisation's goals and objectives |
| 2. Enhance organisation's image | 2.1 Use organisation's standards and values in conducting business<br>2.2 Question, through established communication channels, standards and values considered to be damaging to the organisation<br>2.3 Ensure personal performance contributes to developing an organisation which has integrity and credibility |
| 3. Make informed decisions | 3.1 Gather and organise information relevant to the issue/s under consideration<br>3.2 Facilitate individual's and team's active participation in decision-making processes<br>3.3 Examine options and assess associated risks to determine preferred course/s of action<br>3.4 Ensure decisions are timely and communicate them clearly to individuals and teams<br>3.5 Prepare plans to implement decisions and ensure they are agreed by relevant individuals and teams<br>3.6 Use feedback processes effectively to monitor the implementation and impact of decisions |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.4, 2.1, 3.1, 3.3, 3.5, 3.6 | • Gathers, interprets and analyses text relating to organisational goals, standards and values to aid planning and decision making |
| Writing | 1.3, 1.4, 3.1, 3.3, 3.5, 3.6 | • Records and reports key information related to the organisational goals, standards and objectives<br>• Researches, plans and prepares documentation for relevant stakeholders |
| Oral Communication | 1.2, 1.3, 2.2, 2.3, 3.2, 3.4, 3.5, 3.6 | • Uses appropriate structure and language when developing performance plans, or when seeking and providing information about organisational goals and |


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| | | |
|---|---|---|
| | | objectives |
| Numeracy | 1.4 | • Identifies and comprehends mathematical information in familiar texts to establish key performance indicators |
| Navigate the world of work | 1.1, 1.2, 1.3, 1.4, 2.1, 2.3 | • Understands how own role meshes with others and contributes to broader work goals<br>• Monitors adherence to organisational policies and procedures and considers own role in terms of its contribution to broader goals of the work environment |
| Interact with others | 1.2, 1.3, 2.2, 2.3, 3.2, 3.4, 3.5, 3.6 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective outcomes<br>• Recognises the importance of taking audience, purpose and contextual factors into account when making decisions about what to communicate with whom, why and how |
| Get the work done | 1.1, 1.3, 1.4, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 | • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they contribute to longer term operational and strategic goals<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria<br>• Evaluates effectiveness of decisions in terms of how well they meet stated goals |

# Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| Organisation's standards and values must be identified by considering: | • explicitly stated values<br>• values that are implied by the way the organisation conducts its business. |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBMGT401 Show leadership in the workplace | BSBMGT401A Show leadership in the workplace | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBMGT401 Show leadership in the workplace

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify the organisation's standards and values, whether stated or implied by the way the organisation conducts its business
- evaluate own behaviour and performance against these and adjust to achieve required standards
- develop and implement performance plans and key performance indicators (KPIs) to meet organisation's goals and objectives
- use established communication channels to raise questions about standards and values that may be damaging to the organisation
- ensure own behaviour and performance contributes to the integrity and credibility of the organisation
- facilitate processes to make decisions that are based on:
  - relevant information
  - examination of options and associated risks
  - input from relevant people
- communicate about making and implementing decisions including:
  - facilitating agreement on the preferred course of action and implementation plans
  - monitoring and feedback on the implementation and impact of decisions.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain how to identify an organisation's standards and values when they are:
  - stated


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  - implied
- articulate organisational values and expectations of behaviour
- explain basic theory of group behaviour
- outline the organisation's process for raising questions about standards and values
- give examples of behaviours and performance that would typically be considered damaging to an organisation
- explain concepts including:
  - organisational values
  - role modelling
  - integrity and credibility
  - leadership.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership field of work and include access to:

- relevant workplace documentation and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBMGT608 Manage innovation and continuous improvement

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to sustain and develop an environment in which continuous improvement, innovation and learning are promoted and rewarded.

It applies to people with managerial responsibilities who aim to build a better and more effective work environment. Continuous improvement and innovation have links with the model of the learning organisation and people working at this level play an important role in building the culture, values and attitudes of the organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Review programs, systems and processes | 1.1 Establish strategies to monitor and evaluate performance and sustainability of key systems and processes<br>1.2 Undertake detailed analyses of supply chains, and operational, product and service delivery systems<br>1.3 Identify performance measures, and assessment tools and techniques, and evaluate their effectiveness<br>1.4 Analyse performance reports and variance from plans for key |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | result areas of the organisation<br>1.5 Identify and analyse changing trends and opportunities relevant to the organisation<br>1.6 Seek advice from specialists, where appropriate, to identify technology and electronic commerce opportunities |
| 2. Develop options for continuous improvement | 2.1 Brief groups on performance improvement strategies and innovation as an essential element of competition<br>2.2 Foster creative climate and organisational learning by promoting interaction within and between work groups<br>2.3 Encourage, test and recognise new ideas and entrepreneurial behaviour where successful<br>2.4 Accept failure of an idea during trialling and recognise, celebrate and embed success into systems<br>2.5 Undertake risk management and cost-benefit analysis for each option or idea approved for trial<br>2.6 Approve innovations through agreed organisational processes |
| 3. Implement innovative processes | 3.1 Promote continuous improvement and sustainability as essential to doing business<br>3.2 Address the impact of change and consequences for people and implement transition plans<br>3.3 Ensure objectives, timeframes, measures and communication plans are in place to manage implementation<br>3.4 Implement contingency plans in the event of non-performance<br>3.5 Follow up failure by prompt investigation and analysis of causes and manage emerging challenges and opportunities effectively<br>3.6 Ensure that learnings from activities are captured and managed to inform future work<br>3.7 Regularly evaluate continuous improvement systems and processes<br>3.8 Communicate costs and benefits of innovations and improvements to relevant groups and individuals |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.6 | • Plans and implements strategies to review and improve own performance |
| Reading | 1.1-1.5, 2.5, 2.6, 3.2-3.5, 3.7 | • Analyses, evaluates and integrates facts and ideas to construct meaning from a range of text types |
| Writing | 1.1-1.5, 2.1, 2.5, 3.2, 3.3, 3.5, 3.6, 3.7, 3.8 | • Integrates information and ideas from a range of sources, utilising appropriate support materials<br>• Communicates complex relationships between ideas and information, matching style of writing to purpose and audience |
| Oral Communication | 1.6, 2.1-2.4, 3.1, 3.5, 3.8 | • Participates in a variety of spoken exchanges with co-workers and stakeholders when developing options and implementing the continuous improvement plan |
| Numeracy | 1.1-1.5, 2.5, 3.3 | • Selects and interprets mathematical information to analyse performance<br>• Performs calculations required to establish timeframes, cost-benefits and measures for continuous improvement and innovation processes |
| Navigate the world of work | 2.6 | • Adheres to organisational policies and procedures and considers own role in terms of its contribution to broader goals of the work environment |
| Interact with others | 1.6, 2.1-2.4, 3.1, 3.5, 3.8 | • Recognises the importance of taking audience, purpose and contextual factors into account when making decisions about what to communicate, with whom, why and how<br>• Recognises the importance of building rapport to establish positive and effective working relationships<br>• Collaborates with others to achieve joint outcomes, playing an active role in encouraging innovation and facilitating effective group interaction |
| Get the work done | 1.1, 1.2, 1.3, 1.5, 1.6, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.7 | • Plans, organises, implements or reviews organisational strategies, systems and processes<br>• Applies problem-solving processes to identify risks, evaluate options and determine solutions<br>• Uses lateral and analytical thinking to evaluate options against needs, resources and constraints before making decisions<br>• Facilitates a climate in which creativity and innovation |


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| | | |
|---|---|---|
| | | are accepted as an integral part of achieving outcomes<br>• Recognises that the current way is only one way of doing something and explores possibilities that challenge current approaches<br>• Actively identifies systems, devices and applications with potential to meet current and or future needs, with the help of specialists |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBMGT608 Manage innovation and continuous improvement | BSBMGT608C Manage innovation and continuous improvement | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBMGT608 Manage innovation and continuous improvement

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse and evaluate systems and performance in key areas of the organisation and identify opportunities for improvement, seeking advice from experts as appropriate
- promote the value of creativity, innovation and sustainability and recognise successes
- support the testing and trialling of new ideas and undertake risk management and cost-benefit analysis for options
- plan for and implement improvements using organisation's processes for approvals, project management and change management
- facilitate effective contributions to and communications about continuous improvement and innovation
- capture insights, experiences and ideas for improvements and incorporate them into the organisation's knowledge management systems and future planning.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline cost-benefit analysis methods
- describe creativity and innovation theories and concepts
- list organisational learning principles
- identify quality management and continuous improvement theories
- describe relevant risk management concepts
- outline relevant sustainability practices.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership field of work and include access to:

- relevant workplace documentation and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBPMG517 Manage project risk

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to manage risks that may impact achievement of project objectives. It involves identifying, analysing, treating and monitoring project risks, and assessing risk management outcomes.

It applies to individuals responsible for managing and leading a project in an organisation, business, or as a consultant.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Project Management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify project risks | 1.1 Determine risk objectives and standards, with input from stakeholders<br>1.2 Establish project risk context to inform risk management processes<br>1.3 Identify project risks using valid and reliable risk identification methods<br>1.4. Classify project risks within agreed risk categories |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 2. Analyse project risks | 2.1 Determine risk analysis classification criteria and apply to agreed risk ranking system<br>2.2 Use risk analysis processes, within delegated authority, to analyse and qualify risks, threats and opportunities<br>2.3 Determine risk priorities in agreement with project client and other stakeholders<br>2.4 Document risk analysis outcomes for inclusion in risk register and risk management plan |
| 3. Establish risk treatments and controls | 3.1 Identify and document existing risk controls<br>3.2 Consider and determine risk treatment options using agreed consultative methods<br>3.3 Record and implement agreed risk treatments<br>3.4 Update risk plans and allocate risk responsibilities to project team members |
| 4. Monitor and control project risks | 4.1 Establish regular risk review processes to maintain currency of risk plans<br>4.2 Regularly monitor risk environment to identify changed circumstances impacting project risks<br>4.3 Determine risk responses to changed environment<br>4.4 Implement agreed risk responses and modify plans to maintain currency of risk treatments and controls |
| 5. Assess risk management outcomes | 5.1 Review project outcomes to determine effectiveness of risk-management processes and procedures<br>5.2 Identify and document risk management issues and recommended improvements for application to future projects |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 2.1, 2.2, 3.1, 3.2, 4.2, 5.1, 5.2 | • Interprets and critically analyses complex texts from a range of sources and determines how content may be applied according to organisational requirements |


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| | | |
|---|---|---|
| Writing | 1.3, 1.4, 2.1, 2.4, 3.1, 3.3, 3.4, 4.1, 4.3, 4.4, 5.2 | • Documents risks, risk analysis and risk controls using required formats and structure<br>• Modifies and updates workplace documentation according to requirements |
| Oral Communication | 1.1, 2.3, 3.4 | • Participates in verbal exchanges using clear language to provide and seek information<br>• Uses active listening and questioning techniques to confirm understanding |
| Numeracy | 1.3, 2.1, 2.3 | • Analyses numerical data to identify project risk levels and rank risks according to agreed system of classification |
| Navigate the world of work | 1.1, 2.2 | • Determines and adheres to organisational policies and standards<br>• Considers own role in terms of its contribution to broader goals of work environment |
| Interact with others | 1.1, 2.3, 3.4 | • Selects and uses appropriate conventions and protocols when communicating with internal and external stakeholders to seek or share information<br>• Actively identifies requirements of important communication exchanges, selecting appropriate channels, format and content to suit purpose and audience |
| Get the work done | 1.1-1.4, 2.1, 3.2, 4.1, 4.4, 5.1 | • Identifies and develops approaches to risk management and implements complex tasks to achieve outcomes<br>• Analyses information to make decisions, involving others when appropriate<br>• Uses formal and informal processes to monitor implementation of decisions and reflect on outcomes |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBPMG517 Manage project risk | BSBPMG517A Manage project risk | Updated to meet Standards for Training Packages | Equivalent unit |


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBPMG517 Manage project risk

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- conduct effective risk management for a project of sufficient complexity to demonstrate the full range of performance requirements
- apply risk management techniques, strategies and tools.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify project risks in a range of risk categories
- explain key components of a risk management plan
- outline industry sector risk classifications and relate these to different risk contexts
- summarise organisational and industry standard risk frameworks
- identify and describe characteristics, techniques and appropriate applications of quantitative and qualitative risk management techniques and approaches.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership – project management field of work and include access to:

- workplace risk management documentation
- feedback from project stakeholders about how risks were managed.

Assessors must satisfy NVR/AQTF assessor requirements.


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# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBPMG521 Manage project integration

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to integrate and balance overall project management functions of scope, time, cost, quality, human resources, communications, risk and procurement across the project life cycle; and to align and track project objectives to comply with organisational goals, strategies and objectives.

It applies to individuals responsible for managing and leading a project in an organisation, business, or as a consultant.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Project Management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish project | 1.1 Identify, clarify and prepare project initiation documentation<br>1.2 Identify relationship between the project and broader organisational strategies and goals<br>1.3 Negotiate and document project objectives, outcomes and benefits<br>1.4 Negotiate project governance structure with relevant |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | authorities and stakeholders<br>1.5 Prepare and submit project charter for approval by relevant authorities |
| 2. Undertake project planning and design processes | 2.1 Establish and implement a methodology to disaggregate project objectives into achievable project deliverables<br>2.2 Identify project stages and key requirements for stage completion against client requirements and project objectives<br>2.3 Analyse project management functions to identify interdependencies and impacts of constraints<br>2.4 Develop a project management plan that integrates all project-management functions with associated plans and baselines<br>2.5 Establish designated mechanisms to monitor and control planned activity<br>2.6 Negotiate approval of project plan with relevant stakeholders and project authority |
| 3. Execute project in work environment | 3.1 Manage the project in an established internal work environment to ensure work is conducted effectively throughout the project<br>3.2 Maintain established links to align project objectives with organisational objectives throughout the project<br>3.3 Within authority levels, resolve conflicts negatively affecting attainment of project objectives |
| 4. Manage project control | 4.1 Ensure project records are updated against project deliverables and plans at required intervals<br>4.2 Analyse and submit status reports on project progress and identified issues with stakeholders and relevant authorities<br>4.3 Analyse and submit impact analysis of change requests for approval, where required<br>4.4 Maintain relevant project logs and registers accurately and regularly to assist with project audit<br>4.5 Ensure associated plans are updated to reflect project progress against baselines and approved changes |
| 5. Manage project finalisation | 5.1 Identify and allocate project finalisation activities<br>5.2 Ensure project products and associated documentation are prepared for handover to client in a timely manner<br>5.3 Finalise financial, legal and contractual obligations |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.4 Undertake project review assessments as input to future projects |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 2.4, 4.1, 4.2, 4.3 | • Applies appropriate strategies to construct meaning from complex texts |
| Writing | 1.1, 1.3, 1.5, 2.2, 2.4, 4.1, 4.4, 4.5 | • Develops and maintains project documentation using formats and language appropriate to context |
| Oral Communication | 1.3, 1.4, 2.6 | • Participates in verbal exchanges using clear and detailed language to provide and seek information<br>• Uses active listening and questioning to confirm understanding |
| Numeracy | 1.1, 2.1-2.4, 4.2, 4.3, 5.3 | • Uses a wide range of mainly formal and some informal, oral and written mathematical language and representation to communicate mathematically |
| Navigate the world of work | 1.2, 1.5, 5.3 | • Adheres to organisational and legislative requirements |
| Interact with others | 1.3,1.4, 2.6, 3.3 | • Selects and uses appropriate communication practices to seek or share information with stakeholders<br>• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction and negotiating outcomes |
| Get the work done | 1.1, 1.2, 1.5, 2.1-2.5, 3.1, 3.2, 4.1-4.5, 5.1-5.4 | • Organises time and effort around priorities and results, focusing beyond immediate tasks to consider work performance of the group<br>• Sequences and schedules complex activities, monitors implementation and manages relevant communication<br>• Reflects on outcomes to contribute to future projects |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBPMG521 Manage project integration | BSBPMG521A Manage project integration | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBPMG521 Manage project integration

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- work closely with others to integrate all project management functions across a project life cycle according to organisational objectives
- negotiate with internal and external stakeholders
- create accurate project management documentation
- make suggestions for improvements to managing project integration in the future.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise project governance models
- describe range of methodologies to break project objectives into achievable project deliverables
- outline role of project life cycle stages, phases and structures relevant to industry and project context
- identify and describe appropriate organisational documentation for recording strategies and goals for integration processes.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership – project management field of work and include access to:

- project documentation
- case studies and, where possible, real situations


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- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBPMG522 Undertake project work

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to undertake a straightforward project or a section of a larger project. It covers developing a project plan, administering and monitoring the project, finalising the project and reviewing the project to identify lessons learned for application to future projects.

This unit applies to individuals who play a significant role in ensuring a project meets timelines, quality standards, budgetary limits and other requirements set for the project.

The unit does not apply to specialist project managers. For specialist project managers, the other units of competency in the project management field (BSBPMG) will be applicable.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Project Management

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Define project | 1.1 Access project scope and other relevant documentation<br>1.2 Define project stakeholders<br>1.3 Seek clarification from delegating authority of issues related to |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | project and project parameters<br>1.4 Identify limits of own responsibility and reporting requirements<br>1.5 Clarify relationship of project to other projects and to the organisation's objectives<br>1.6 Determine and access available resources to undertake project |
| 2. Develop project plan | 2.1 Develop project plan in line with the project parameters<br>2.2 Identify and access appropriate project management tools<br>2.3 Formulate risk management plan for project, including Work Health and Safety (WHS)<br>2.4 Develop and approve project budget<br>2.5 Consult team members and take their views into account in planning the project<br>2.6 Finalise project plan and gain necessary approvals to commence project according to documented plan |
| 3. Administer and monitor project | 3.1 Take action to ensure project team members are clear about their responsibilities and the project requirements<br>3.2 Provide support for project team members, especially with regard to specific needs, to ensure that the quality of the expected outcomes of the project and documented time lines are met<br>3.3 Establish and maintain required recordkeeping systems throughout the project<br>3.4 Implement and monitor plans for managing project finances, resources and quality<br>3.5 Complete and forward project reports as required to stakeholders<br>3.6 Undertake risk management as required to ensure project outcomes are met<br>3.7 Achieve project deliverables |
| 4. Finalise project | 4.1 Complete financial recordkeeping associated with project and check for accuracy<br>4.2 Ensure transition of staff involved in project to new roles or reassignment to previous roles<br>4.3 Complete project documentation and obtain necessary sign-offs for concluding project |
| 5. Review project | 5.1 Review project outcomes and processes against the project scope and plan |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 5.2 Involve team members in the project review<br>5.3 Document lessons learned from the project and report within the organisation |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 3.4, 3.5, 4.1, 4.3, 5.1 | • Organises, evaluates and critiques ideas and information from a range of complex texts |
| Writing | 2.1, 2.3, 2.6, 3.3, 3.5, 4.1, 4.3, 5.3 | • Develops plans, reports and recommendations using vocabulary, structure and conventions appropriate to text<br>• Establishes and maintains records according to organisational requirements |
| Numeracy | 1.6, 2.4, 3.4, 4.1 | • Uses formal and some informal, oral and written mathematical language and representation to prepare and communicate budgetary and financial information |
| Oral communication | 2.5, 5.2 | • Participates in verbal discussions using clear language and appropriate features to present or seek information<br>• Using listening and questioning skills to seek information and confirm understanding |
| Navigate the world of work | 1.3, 1.4, 2.3, 3.1, 4.3 | • Recognises and responds to organisational and legislative/regulatory requirements |
| Interact with others | 2.5, 3.1, 3.2, 4.2, 5.2 | • Selects and uses appropriate communication protocols and practices to ensure shared understanding of project roles and expectations<br>• Uses collaborative techniques to engage stakeholders in consultations and negotiations |
| Get the work done | 1.2, 1.5, 1.6, 2.1, 2.2, 2.3, 2.6, 3.1-3.7, 4.1, 4.2, 4.3, 5.1, 5.3 | • Develops and implements plans to manage projects that involve diverse stakeholders with potentially competing demands<br>• Systematically gathers and analyses all relevant information and evaluates options to make informed decisions<br>• Evaluates outcomes of decisions to identify |


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| | | |
|---|---|---|
| | | opportunities for improvement<br>• Uses digital technologies and applications to access, organise and share information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBPMG522 Undertake project work | BSBPMG522A Undertake project work | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBPMG522 Undertake project work

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- define the parameters of the project including:
  - project scope
  - project stakeholders, including own responsibilities
  - relationship of project to organisational objectives and other projects
  - reporting requirements
  - resource requirements
- use project management tools to develop and implement a project plan including:
  - deliverables
  - work breakdown
  - budget and allocation of resources
  - timelines
  - risk management
  - recordkeeping and reporting
- consult and communicate with relevant stakeholders to generate input and engagement in planning, implementing and reviewing the project
- provide support to team members to enable them to achieve deliverables and to transition them as appropriate at completion of the project
- finalise the project including documentation, sign-offs and reporting
- review and document the project outcomes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:


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- give examples of project management tools and how they contribute to a project
- outline types of documents and other sources of information commonly used in defining the parameters of a project
- explain processes for identifying and managing risk in a project
- outline the organisation's mission, goals, objectives and operations and how the project relates to them
- explain the organisation's procedures and processes that are relevant to managing a project including:
  - lines of authority and approvals
  - quality assurance
  - human resources
  - budgets and finance
  - recordkeeping
  - reporting
- outline the legislative and regulatory context of the organisation in relation to project work, including work health and safety (WHS) requirements.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership – project management field of work and include access to:

- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBSMB305 Comply with regulatory, taxation and insurance requirements for the micro business

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with BSB Business Services Training Package Version 2.0.<br>Version created to clarify intent of unit |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to source advice and specialist services to manage business compliance requirements.

It applies to individuals who are establishing or operating a micro business providing self-employment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Small and Micro Business

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify regulatory, taxation and insurance requirements of the business | 1.1 Identify regulatory, taxation and insurance requirements that might be relevant to operation of the business<br>1.2 Gather information that assists in interpreting and explaining regulatory, taxation and insurance requirements |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Investigate relationships between legislation, regulations, codes of practice, associated standards and written material to determine compliance requirements of the business |
| 2. Develop procedures to ensure compliance and risk minimisation | 2.1 Identify business advisors and other sources of assistance relevant to compliance requirements and business type<br>2.2 Explain business type and operations to advisors, covering full scope of the business<br>2.3 Clarify and confirm compliance requirements and risk minimisation needs with advisors<br>2.4 Access sources of advice and specialist services for regulatory, taxation and insurance compliance<br>2.5 Review advice and procedures against compliance requirements and their appropriateness for the business |
| 3. Implement compliance procedures | 3.1 Implement procedures within provided guidelines<br>3.2 Take action to ensure the business complies with relevant taxation and business registration requirements, legislation, regulations, codes of practice and associated standards<br>3.3 Arrange appropriate insurance cover for the business |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1, 2.4, 2.5, 3.1-3.3 | • Identifies and interprets legislative and regulatory information pertinent to business requirements |
| Writing | 1.1, 2.1, 3.2, 3.3 | • Develops material for a specific audience using clear and detailed language to clarify information and requirements |
| Oral Communication | 2.2, 2.3, 3.3 | • Articulates clearly using specific and relevant language suitable to audience to convey requirements, and listening and questioning techniques to confirm understanding |
| Numeracy | 2.5, 3.3 | • Analyses numerical information to calculate specific business requirements |


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| | | |
|---|---|---|
| | | • Uses formal and informal mathematical language to discuss compliance |
| Navigate the world of work | 1.1, 1.3, 3.1, 3.2 | • Takes some personal responsibility for adherence to legal and regulatory requirements |
| Get the work done | 1.2, 1.3, 2.1, 2.4, 3.3 | • Plans routine tasks with familiar goals and outcomes, taking some limited responsibility for decisions regarding sequencing and timing<br>• Understands and explicitly applies some basic principles of analytical and lateral thinking<br>• Takes responsibility for the outcomes of routine decisions related directly to own role<br>• Determines priorities and sequences steps involved in clearly defined familiar tasks, and identifies and assembles resources required |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBSMB305 Comply with regulatory, taxation and insurance requirements for the micro business Release 2 | BSBSMB305 Comply with regulatory, taxation and insurance requirements for the micro business Release 1 | Minor edits to clarify intent | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSMB305 Comply with regulatory, taxation and insurance requirements for the micro business

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0.<br>Version created to clarify intent of unit |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify regulatory, taxation and insurance compliance requirements, and risk minimisation needs of the business
- identify, select and access sources of advice on compliance and risk minimisation procedures for the business
- complete a development and review of procedures for compliance and risk minimisation (with assistance from advisors).

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify micro business registration and licensing requirements
- list government legislative requirements relating to business operation
- categorise the nature of legal responsibility
- pinpoint relevant industry codes of practice
- list relevant WHS responsibilities and procedures
- name sources of advice and specialist services
- identify sources of information about regulatory, taxation and insurance requirements and issues
- outline taxation requirements.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the Management and Leadership – Small and Micro Business field of work and include access to:

- business technology including internet access for research
- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies or where possible, real situations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBSMB306 Plan a home based business

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0.<br><br>Version created to clarify intent of unit |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to assess the viability and create a plan to operate a business in the home environment.

It applies to individuals who are establishing or operating a micro business providing self-employment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Small and Micro Business

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Determine viability of basing a business in a home environment | 1.1 Identify activities that will be undertaken by the business and what facilities and workspace are needed<br>1.2 Identify what licences, permits, regulations or restrictions apply to operating a home based business |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Identify availability of services and infrastructure to support the business<br>1.4 Calculate costs of suitable fittings and equipment for the business and any modifications required to existing facilities and infrastructure in the home<br>1.5 Determine access requirements of clients or delivery vehicles to the business premises<br>1.6 Identify insurance requirements for operation of the business in the home |
| 2. Plan workplace in a home environment | 2.1 Prepare a floor plan or layout that meets needs of the business and home occupants<br>2.2 Prepare any concept plans for modifications to buildings or structures in accordance with local government requirements<br>2.3 Obtain approvals from relevant authorities<br>2.4 Identify work health and safety (WHS) issues and develop procedures to eliminate or minimise any risks<br>2.5 Design workplace to provide appropriate client access and facilities while retaining privacy for home occupants<br>2.6 Allocate adequate and secure space for business machinery, equipment and storage of materials |
| 3. Minimise potential sources of conflict | 3.1 Identify possible sources of conflict with neighbours or home occupants<br>3.2 Develop protocols for home occupants, visitors and clients to enable the business to successfully operate in the home environment<br>3.3 Prepare a work schedule that identifies business and personal activities<br>3.4 Establish contingency plans for unanticipated events |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.2, 1.3, 1.6, 2.2, 2.4 | • Interprets all legislative and regulatory information pertinent to business requirements |
| Writing | 1.6, 2.1, 2.3, 2.4, 3.2-3.4 | • Uses factual information to complete required forms and workplace documentation |
| Oral Communication | 1.6, 2.3 | • Articulates clearly using specific and relevant language suitable to audience to convey requirements, and listening and questioning techniques to confirm understanding |
| Numeracy | 1.4 | • Analyses numerical information to calculate equipment and infrastructure costs |
| Navigate the world of work | 1.2, 2.2, 2.4, 3.2 | • Appreciates implications of legal and regulatory responsibilities related to own work and recognises specific legal principles and protocols applicable across work context |
| Interact with others | 2.3 | • Selects appropriate form, channel and mode of communication for a specific purpose relevant to own role |
| Get the work done | 1.1, 1.3-1.6, 2.1, 2.5, 2.6, 3.1, 3.3, 3.4 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing work efficiently<br>• Takes responsibility for outcomes of decisions related directly to own role<br>• Recognises and takes responsibility for addressing and rectifying potential problems in the work place |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBSMB306 Plan a home based business Release 2 | BSBSMB306 Plan a home based business Release 1 | Minor edits to clarify intent | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSMB306 Plan a home based business

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0.<br>Version created to clarify intent of unit |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- identify practical requirements of running a home based business, including calculation of costs
- plan suitable workspace, including:
  - preparing concept plan for possible modifications to structure of building
  - obtaining relevant approvals from external sources
  - identifying and meeting required legislative requirements
- implement procedures and protocols to ensure home based business runs smoothly including:
  - creating work schedule
  - identifying and establishing contingency plans for areas of possible conflict.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list prohibitive factors in setting up a home based business
- list commonwealth, state/territory and local government legislative requirements relating to business operation, especially for work health and safety (WHS) and environmental issues
- outline constraints of home based businesses


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- summarise relevant services and available infrastructure.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the Management and Leadership – Small and Micro Business field of work and include access to:

- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies or where possible, real situations.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBSMB401 Establish legal and risk management requirements of small business

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0.<br><br>Version created to clarify intent of unit |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to identify and comply with all regulations affecting the business.

It applies to individuals operating a small business who use analytical skills to interpret legislation and regulations and develop procedures to manage compliance.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Small and Micro Business

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify and implement business legal requirements | 1.1 Identify and research possible options for the business legal structure using appropriate sources<br>1.2 Determine legislation and regulatory requirements affecting |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | operations of the business under its chosen structure<br>1.3 Develop and implement procedures to ensure full compliance with relevant legislation and regulatory requirements |
| 2. Comply with legislation, codes and regulatory requirements | 2.1 Establish systems to ensure legal rights and responsibilities of the business are identified and the business is adequately protected, specifically in relation to work health and safety (WHS), business registration and environmental requirements<br>2.2 Identify taxation principles and requirements relevant to the business, and follow procedures to ensure compliance<br>2.3 Identify and carefully maintain legal documents and maintain and update relevant records to ensure their ongoing security and accessibility<br>2.4 Monitor provision of products and services of the business to protect legal rights and to comply with legal responsibilities<br>2.5 Conduct investigations to identify areas of non-compliance with legal and regulatory requirements, and take corrective action where necessary |
| 3. Negotiate and arrange contracts | 3.1 Seek legal advice on contractual rights and obligations, if required, to clarify business liabilities<br>3.2 Investigate and assess potential products and services to determine procurement rights and ensure protection of business interests where applicable<br>3.3 Negotiate and secure contractual procurement rights for goods and services including contracts with relevant people, as required, in accordance with the business plan<br>3.4 Identify options for leasing or ownership of business premises and complete contractual arrangements in accordance with the business plan |
| 4. Identify and treat business risks | 4.1 identify potential internal and external risks to the business<br>4.2 assess the probability and impact of identified risks<br>4.3 prioritise risks for treatment<br>4.4 develop actions to mitigate risks including identifying insurance requirements and adequate cover |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.1-2.4, 3.2-3.5 | • Identifies, analyses and evaluates a range of complex text to determine legislative, regulatory and related business requirements |
| Writing | 1.3, 2.1, 2.3, 2.5, 3.1, 3.3, 3.5 | • Prepares written reports and workplace documentation that communicate complex information clearly and effectively |
| Oral Communication | 2.5, 3.1, 3.3 | • Uses specific and relevant language to clearly articulate legal issues, and uses questioning and listening techniques to clarify solutions<br>• Participates in verbal negotiations using tone and language suitable to audience |
| Numeracy | 2.2, 2.5, 3.3, 3.4 | • Reviews, analyses, compares and contrasts numerical data which may be embedded in documents<br>• Calculates business insurance costs and compares costing options |
| Navigate the world of work | 1.2, 1.3, 2.1 | • Monitors adherence to organisational policies and legislative responsibilities and considers own role in terms of its contribution to broader goals of work environment |
| Interact with others | 3.1, 3.3 | • Plays a lead role in situations requiring effective collaboration, demonstrating high-level influencing skills, focusing and shaping awareness, and engaging and motivating others |
| Get the work done | 1.1-1.3, 2.1 | • Takes responsibility for planning and organising own workload, identifying ways of sequencing and combining elements for greater efficiency<br>• Implements actions as per plan, making adjustments if necessary and addressing unexpected issues<br>• Understands importance of secure information and privacy in relation to own work and takes personal responsibility for identifying and managing risk factors<br>• Makes a range of critical and non-critical decisions in complex situations, taking a range of constraints into account |


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# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBSMB401 Establish legal and risk management requirements of small business Release 2 | BSBSMB401 Establish legal and risk management requirements of small business Release 1 | Minor edits to clarify intent of unit | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSMB401 Establish legal and risk management requirements of small business

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0.<br><br>Version created to clarify intent of unit |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- demonstrate a systematic approach to identifying, managing and meeting legal and regulatory requirements, specifically in regard to WHS, business registration and environmental requirements
- ensure compliance, by:
  - following taxation and industrial relations principles
  - updating and maintaining legal documents
  - investigating areas of non-compliance
  - monitoring provision of products and services
  - taking corrective action where necessary
- negotiate and arrange contracts, including:
  - seeking legal advice
  - investigating procurement rights
  - identifying options of leasing or ownership of business premises.
- Identify, assess and treat risks specific to the business including
  - prioritising risks with highest probability of occurrence and greatest negative impact on the business
  - identifying insurance requirements

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.


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# Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline business registration and licensing requirements
- identify all government legislative requirements relating to the specific business operation
- explain creation and termination of relevant legal contracts
- summarise relevant cultural differences and legal implications
- describe legal rights and obligations of alternative ownership structures
- outline necessary record keeping to meet minimum legal and taxation requirements
- summarise relevant consumer legislation and industry codes of practice
- outline the key steps in the risk management process
- explain relevant insurance requirements and products.

# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the Management and Leadership – Small and Micro Business field of work and include access to:

- office equipment and resources
- business technology including internet access
- specialist software for analysis of data
- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies, or where possible, real situations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBSMB405 Monitor and manage small business operations

## Modification History

| Release | Comments |
|---|---|
| Release 3 | This version released with BSB Business Services Training Package Version 2.0.<br><br>Version created to clarify intent of unit |
| Release 2 | This version first released with BSB Business Services Training Package Version 1.1.<br><br>Version created to correct mapping table information |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to implement a business plan and modify operations as required.

It applies to individuals who operate a small business which stands alone, or is part of a department within a larger organisation. Individuals in this role use problem-solving skills and take responsibility for developing approaches to manage business operations.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Small and Micro Business

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the* | *Performance criteria describe the performance needed to* |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *essential outcomes.* | *demonstrate achievement of the element.* |
| 1. Develop operational strategies and procedures | 1.1 Develop an action plan to provide a clear and coherent direction, in accordance with business goals and objectives<br>1.2 Identify work health and safety (WHS) and environmental issues, and implement strategies to minimise risk factors<br>1.3 Develop a quality system for the business in line with industry standards, compliance requirements and cultural criteria<br>1.4 Develop performance measures and operational targets to conform with the business plan<br>1.5 Develop strategies for innovation, including utilisation of existing, new or emerging technologies, where practicable, to optimise business performance |
| 2. Implement operational strategies and procedures | 2.1 Implement systems and key performance indicators or targets to monitor business performance and customer satisfaction<br>2.2 Implement systems to control stock, expenditure or cost, wastage or shrinkage and risks to health and safety in accordance with the business plan<br>2.3 Maintain staffing requirements, where applicable, within budget, to maximise productivity<br>2.4 Carry out provision of goods or services in accordance with established legal, ethical cultural and technical standards<br>2.5 Provide goods or services in accordance with time, cost and quality specifications, and customer requirements<br>2.6 Apply quality procedures to address product or service and customer requirements |
| 3. Monitor business performance | 3.1 Regularly monitor and review achievement of operational targets to ensure optimum business performance, in accordance with business plan goals and objectives<br>3.2 Review systems and structures, with a view to more effectively supporting business performance<br>3.3 Investigate and analyse operating problems to establish causes and implement changes as required, as part of the business quality system<br>3.4 Amend operational policies and procedures to incorporate corrective action |
| 4. Review business operations | 4.1 Review and adjust business plan, as required, to maintain business viability, in accordance with business goals and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | objectives<br>4.2 Clearly record proposed changes to aid future planning and evaluation<br>4.3 Undertake ongoing research into new business opportunities and adjust business goals and objectives as new business opportunities arise |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 1.5, 2.1, 2.2, 2.4, 2.5, 3.1, 4.1 | • Evaluates complex text to determine legislative, regulatory and workplace documentation |
| Writing | 1.1, 1.3-1.5, 3.2, 3.4, 4.1, 4.2 | • Prepares written reports and workplace documentation that communicate complex information clearly and effectively |
| Oral Communication | 3.2 | • Articulates clearly using specific and relevant language suitable to audience to convey requirements, and employs listening and questioning techniques to confirm understanding |
| Numeracy | 2.2, 2.3, 2.5 | • Interprets numerical information to manage performance information and regulate cash flow |
| Navigate the world of work | 1.1-1.3, 2.2, 2.4, 4.1 | • Monitors adherence to organisational policies and procedures and considers own role for its contribution to broader goals of the work environment<br>• Appreciates implications of legal and regulatory responsibilities related to own work with specific reference to safety |
| Get the work done | 1.1, 1.3-1.5, 2.1-2.3, 2.5, 2.6, 3.1-3.3, 4.1, 4.3 | • Reflects on how digital systems and tools are used or could be used to achieve work goals, and begins to recognise strategic and operational applications<br>• Identifies concepts, principles and features of approaches in use in other contexts and considers how these may suit own situation<br>• Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may |


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| | | |
|---|---|---|
| | | contribute to longer-term operational and strategic goals<br>• Uses each experience to reflect on how variables impact decision outcomes, and to gain insights into what constitutes 'good' judgement and an effective decision in different contexts<br>• Recognises and addresses some unfamiliar problems of increasing complexity within own scope |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBSMB405 Monitor and manage small business operations Release 3 | BSBSMB405 Monitor and manage small business operations Release 2 | Updated to clarify intent | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSMB405 Monitor and manage small business operations

## Modification History

| Release | Comments |
|---|---|
| Release 3 | This version released with BSB Business Services Training Package Version 2.0.<br><br>Version created to clarify intent of unit |
| Release 2 | This version first released with BSB Business Services Training Package Version 1.1.<br><br>Version created to correct mapping table information |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- develop strategies and procedures to successfully manage business operations, including:
  - developing an action plan
  - identifying risk management procedures
  - developing a quality system
  - implementing performance measures
  - utilising technologies to optimise business performance
- implement and monitor strategies and procedures developed, including:
  - analysing and correcting business problems
  - reviewing and adjusting the business plan
- record and research business improvements
- make appropriate adjustments to business operations as required.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.


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# Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- summarise relevant industry codes of practice
- explain methods for implementing operation and revenue control systems
- summarise methods for monitoring performance and implementing improvements
- outline work health and safety (WHS) responsibilities and procedures for managing hazards
- identify relevant principles of risk management, including risk assessment
- clarify quality system principles and methods
- summarise relevant performance measures
- discuss role of innovation
- outline systems to manage staff, stock, expenditure, services and customer service
- identify technical or specialist skills relevant to business operations.

# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the Management and Leadership – Small and Micro Business field of work and include access to:

- business equipment and resources
- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies or possible, real situations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBSMB407 Manage a small team

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0.<br>Version created to clarify intent of unit |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to select, induct, train and develop staff members to enhance business operations within the parameters of all relevant legislative requirements.

It applies to individuals who operate a small business that stands alone, or is part of a department within a larger organisation. Individuals in this role have a good knowledge of industrial relations and team management and use effective, responsive and supportive communication in workplace interactions.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Management and Leadership – Small and Micro Business

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop staffing plan | 1.1 Determine staffing requirements to allow the business to run effectively, in accordance with requirements outlined in the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | business plan<br>1.2 Identify and compare existing skills of owner/s and staff with business requirements to identify any gaps<br>1.3 Develop policies and procedures for owner/s and staff, in accordance with the business plan |
| 2. Recruit, induct, train and retain team | 2.1 Develop job or position descriptions, competencies required and selection criteria to meet business' needs<br>2.2 Judge information obtained from each candidate against specified selection criteria, and select according to business needs and legal requirements<br>2.3 Induct new staff members in accordance with policies and procedures of the business<br>2.4 Make team members aware of their responsibilities and performance requirements as soon as practicable, and take opportunities to coach team members who are unfamiliar with procedures of the business<br>2.5 Develop and implement a staff development program and career paths based on requirements of business and staff competencies<br>2.6 Advertise staff vacancies appropriately in accordance with staffing plan |
| 3. Comply with industrial relations obligations | 3.1 Clarify workplace rights and obligations of employers and employees, in accordance with legal requirements and codes of practice<br>3.2 Counsel staff, if required, in a positive and constructive manner and record outcomes accurately |
| 4. Maintain staff records | 4.1 Develop staff records system to provide timely and accurate information, in accordance with confidentiality, legal and taxation requirements<br>4.2 Monitor and accurately maintain system for recording and retrieving personnel and payroll information, and seek specialist advice where required |
| 5. Manage staff | 5.1 Regularly review contribution and skills of self and other team members to ensure performance is in line with agreed performance measures<br>5.2 Monitor and adjust staffing requirements to respond to any changes in tasks and functions required by the business<br>5.3 Support and encourage staff, and acknowledge and reward |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | their contribution<br>5.4 Regularly provide opportunities for staff to discuss work related issues<br>5.5 Develop contingency plans to cope with unexpected or extreme situations and take appropriate corrective action as required |
| 6. Review team performance | 6.1 Develop positive and constructive relationships with and between team members<br>6.2 Review and update team objectives in support of business goals on a regular basis in consultation with team members<br>6.3 Identify strengths and weaknesses of team against current and expected work requirements<br>6.4 Schedule time, on a regular basis, for team members to review work operations to maintain and improve operational efficiency<br>6.5 Encourage team members to monitor their own performance, suggest improvements and identify professional development needs, in accordance with personal and business requirements<br>6.6 Monitor and review staff turnover rate |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.3, 2.2, 2.3, 2.5, 2.6, 3.1, 4.1, 5.1, 6.3, 6.5, 6.6 | • Evaluates complex text to determine legislative, regulatory and workplace documentation |
| Writing | 1.3, 2.1-2.6, 3.1, 3.2, 4.1, 4.2, 5.5, 6.1-6.3, 6.5 | • Prepares written reports and workplace documentation that communicate complex information clearly and effectively |
| Oral Communication | 1.2, 2.2-2.4, 3.1, 3.2, 4.2, 5.3, 5.4, 6.1, 6.2, 6.4, 6.5 | • Articulates clearly using specific and relevant language suitable to audience to convey requirements, and employs listening and questioning techniques to confirm understanding<br>• Participates in verbal negotiations and coaching using tone and language suitable to audience |


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| | | |
|---|---|---|
| Numeracy | 6.4 | • Uses basic mathematical formulas to review staff performances within available work schedules |
| Navigate the world of work | 1.3, 2.2. 3.1, 4.1 | • Understands own legal rights and responsibilities and is extending understanding of general legal principles across work contexts<br>• Monitors adherence to organisational policies and procedures and considers own role for its contribution to broader goals of the work environment |
| Interact with others | 2.4, 2.6, 5.3, 6.1, 6.5 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and taking a leadership role on occasion<br>• Looks for ways of establishing connections and building genuine understanding with a diverse range of people<br>• Actively identifies important communication exchanges, selecting appropriate channels, format, tone and context to suit purpose and audience, and monitors impact |
| Get the work done | 1.1, 1.2, 2.2, 2.3, 2.5, 4.2, 5.1, 5.2, 5.5, 6.3, 6.6 | • Uses digital technologies and systems safely, legally and ethically when gathering, storing, accessing and sharing information<br>• Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer-term operational and strategic goals<br>• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account<br>• Uses formal and informal processes to monitor implementation of ideas and reflect on outcomes<br>• Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, actively looking for early warning signs and implementing contingency plans |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBSMB407 Manage a small team Release 2 | BSBSMB407 Manage a small | Updated to clarify intent | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | team Release 1 | | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSMB407 Manage a small team

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with BSB Business Services Training Package Version 2.0.<br>Version created to clarify intent of unit |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use the business plan to:
  - determine staffing requirements
  - coordinate skill-gap training where required
  - develop human resource policies and procedures
- develop job descriptions and selection criteria
- determine induction processes
- implement staff development program
- adhere to legal requirements and codes of practice
- develop staff records system
- conduct ongoing performance measures
- communicate effectively with staff members
- develop contingency plans
- develop strategies to review team performance
- monitor and review staff.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss all government legislative requirements relating to staffing the business operation


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- explain work health and safety (WHS) responsibilities and procedures for managing hazards
- summarise relevant industry awards or enterprise agreements
- outline staff development pathways
- identify training course options for staff development
- summarise staff counselling, grievance and disciplinary procedures
- identify unfair dismissal legislation and procedures.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the Management and Leadership – Small and Micro Business field of work and include access to:

- business equipment and resources
- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies or where possible, real situations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBSUS201 Participate in environmentally sustainable work practices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to effectively measure current resource use and carry out improvements, including reducing the negative environmental impact of work practices.

It applies to individuals, working under supervision or guidance, who are required to follow workplace procedures and instructions, and work in an environmentally sustainable manner within scope of competency, authority and own level of responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Industry Capability – Sustainability

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Identify current resource use | 1.1 Identify workplace environmental and resource efficiency issues<br>1.2 Identify resources used in own work role<br>1.3 Document and measure current usage of resources using appropriate techniques<br>1.4 Record and file documentation measuring current usage, using |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | technology (such as software systems) where applicable<br>1.5 Identify and report workplace environmental hazards to appropriate personnel |
| 2. Comply with environmental regulations | 2.1 Follow workplace procedures to ensure compliance<br>2.2 Report breaches or potential breaches to appropriate personnel |
| 3. Seek opportunities to improve resource efficiency | 3.1 Follow organisational plans to improve environmental practices and resource efficiency<br>3.2 Work as part of a team, where relevant, to identify possible areas for improvements to work practices in own work area<br>3.3 Make suggestions for improvements to workplace practices in own work area |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.3, 2.1, 3.1 | • Recognises and interprets textual information to establish job requirements from relevant information |
| Writing | 1.3, 1.4, 1.5, 2.2 | • Completes documents using required formats |
| Oral Communication | 1.5, 2.2, 3.3 | • Articulates ideas clearly and uses simple and relevant language to identify and report issues to designated person |
| Numeracy | 1.3 | • Calculates basic metric measurements to determine resource usage |
| Navigate the world of work | 2.1 | • Understands and adheres to legal and regulatory responsibilities related to own work |
| Interact with others | 1.5, 2.2, 3.2, 3.3 | • Selects and uses appropriate conventions and protocols when communicating with co-workers in range of work contexts<br>• Collaborates and cooperates with others to achieve joint outcomes |
| Get the work | 1.1-1.4, 3.1, 3.3 | • Implements actions as per plan, taking some responsibility for sequencing and timing of tasks |


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| | | |
|---|---|---|
| done | | • Uses main features and functions of digital tools to complete work tasks and access information<br>• Analyses current practices to identify opportunities for improvement. |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBSUS201 Participate in environmentally sustainable work practices | BSBSUS201A Participate in environmentally sustainable work practices | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSUS201 Participate in environmentally sustainable work practices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- locate and interpret a range of environment/sustainability legislation and procedural requirements
- participate in and support discussions for an improved resource efficiency process
- identify, document and measure usage of resources
- collaborate with team members on suggestions for improving workplace practices.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify environmental and resource hazards/risks as well as environmental or sustainability legislation, regulations and codes of practice applicable to own role
- outline sustainability requirements in the workplace
- identify reporting channels and procedures to report breaches and potential issues
- identify where to find environmental and resource efficiency systems and procedures.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the sustainability field of work and include access to:

- documentation, information and resources related to workplace environmental and resource efficiency issues
- office equipment and resources
- case studies and, where possible, real situations


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- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBSUS301 Implement and monitor environmentally sustainable work practices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to effectively analyse the workplace in relation to environmentally sustainable work practices and to implement improvements and monitor their effectiveness.

It applies to individuals with responsibility for a specific area of work or who lead a work group or team and addresses the knowledge, processes and techniques necessary to implement and monitor environmentally sustainable work practices, including the development of processes and tools.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Industry Capability – Sustainability

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Investigate current practices in relation to resource usage | 1.1 Identify environmental regulations applying to the enterprise<br>1.2 Analyse procedures for assessing compliance with environmental/sustainability regulations<br>1.3 Collect information on environmental and resource efficiency systems and procedures, and provide to the work group where |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | appropriate<br>1.4 Collect, analyse and organise information from a range of sources to provide information/advice and tools/resources for improvement opportunities<br>1.5 Measure and document current resource usage of members of the work group<br>1.6 Analyse and document current purchasing strategies<br>1.7 Analyse current work processes to access information and data to assist in identifying areas for improvement |
| 2. Set targets for improvements | 2.1 Seek input from stakeholders, key personnel and specialists<br>2.2 Access external sources of information and data as required<br>2.3 Evaluate alternative solutions to workplace environmental issues<br>2.4 Set efficiency targets |
| 3. Implement performance improvement strategies | 3.1 Source and use appropriate techniques and tools to assist in achieving efficiency targets<br>3.2 Apply continuous improvement strategies to own work area of responsibility, including ideas and possible solutions to communicate to the work group and management<br>3.3 Implement and integrate environmental and resource efficiency improvement plans for own work group with other operational activities<br>3.4 Supervise and support team members to identify possible areas for improved practices and resource efficiency in work area<br>3.5 Seek suggestions and ideas about environmental and resource efficiency management from stakeholders and act upon where appropriate<br>3.6 Implement costing strategies to fully utilise environmental assets |
| 4. Monitor performance | 4.1 Use and/or develop evaluation and monitoring, tools and technology<br>4.2 Document and communicate outcomes to report on efficiency targets to key personnel and stakeholders<br>4.3 Evaluate strategies and improvement plans<br>4.4 Set new efficiency targets, and investigate and apply new tools and strategies<br>4.5 Promote successful strategies and reward participants where possible |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1-1.4, 1.6, 1.7, 2.3, 3.1 | • Identifies and analyses complex texts to determine legislative, regulatory and business requirements<br>• Reviews reported information to evaluate workplace strategies and improvement practices |
| Writing | 1.5, 1.6, 2.1, 2.2, 2.4, 3.1-3.3, 4.4, 4.5 | • Documents findings of investigations from written and oral sources according to organisational requirements<br>• Provides updates about progress using formats and language appropriate to the audience and context |
| Oral Communication | 2.1, 2.2, 3.3-3.5, 4.4, 4.5 | • Presents information and seeks advice using structure and language appropriate to audience<br>• Participates in discussions using listening and questioning to elicit the views of others and to clarify or confirm understanding |
| Numeracy | 1.5, 2.4, 3.1, 3.6, 4.4 | • Analyses numerical information to measure usage and calculates metric measurements, quantities/ratios and financial data using appropriate tools |
| Navigate the world of work | 1.1, 1.2 | • Recognises and follows legislative requirements and organisational policies and procedures associated with own role |
| Interact with others | 1.3, 2.1, 2.2, 3.3-3.5, 4.2, 4.4, 4.5 | • Selects and uses appropriate conventions and protocols when communicating with internal and external stakeholders to seek or share information<br>• Collaborates and consults with a range of stakeholders to achieve shared understanding of individual roles in meeting objectives |
| Get the work done | 1.2, 1.4-1.7, 2.3, 2.4, 3.1, 3.2, 3.3, 3.5, 3.6, 4.1, 4.3, 4.4 | • Develops plans to manage routine and non-routine tasks for own work group with an awareness of how they contribute to the broader organisation<br>• Uses systematic, analytical processes to set environmental targets, gather relevant information, identify and evaluate alternative approaches<br>• Evaluates outcomes of decisions to identify opportunities for improvement<br>• Uses the main features and functions of digital tools to |


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| | | |
|---|---|---|
| | | complete work tasks and access information |

# Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| BSBSUS301 Implement and monitor environmentally sustainable work practices | BSBSUS301A Implement and monitor environmentally sustainable work practices | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSUS301 Implement and monitor environmentally sustainable work practices

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- analyse information from a range of sources to identify current procedures, practices and compliance requirements in relation to environmental and resource sustainability
- consult and communicate with relevant stakeholders to seek input and encourage engagement with developing and implementing sustainability improvements, encourage feedback and suggestions and report on outcomes
- plan and organise work group activities to:
  - measure current resource usage
  - solve problems and generate ideas for improvements
  - evaluate and implement strategies to improve resource usage
  - plan, implement and integrate improvements into operations
  - meet environmental requirements
- apply continuous improvement approach to sustainability performance
- apply change management techniques to support sustainability performance.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify relevant internal and external sources of information and explain how they can be used to identify sustainability improvements
- explain the compliance requirements for the work area with reference to legislation, regulations, codes of practice and workplace procedures that relate to environmental and resource issues
- outline common environmental and energy efficiency issues within the industry


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- give examples of benchmarks for environmental and resource sustainability that are relevant to the organisation
- outline organisational systems and procedures that relate to environmental and resource sustainability improvements including:
  - supply chain, procurement and purchasing
  - quality assurance
  - making recommendations and seeking approvals

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the sustainability field of work and include access to:

- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBSUS501 Develop workplace policy and procedures for sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to develop and implement a workplace sustainability policy and to modify the policy to suit changed circumstances.

It applies to individuals with managerial responsibilities who undertake work developing approaches to create, monitor and improve strategies and policies within workplaces and engage with a range of relevant stakeholders and specialists.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Industry Capability – Sustainability

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Develop workplace sustainability policy | 1.1 Define scope of sustainability policy<br>1.2 Gather information from a range of sources to plan and develop policy<br>1.3 Identify and consult stakeholders as a key component of the policy development process<br>1.4 Include appropriate strategies in policy at all stages of work for |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | minimising resource use, reducing toxic material and hazardous chemical use and employing life cycle management approaches<br>1.5 Make recommendations for policy options based on likely effectiveness, timeframes and cost<br>1.6 Develop policy that reflects the organisation's commitment to sustainability as an integral part of business planning and as a business opportunity<br>1.7 Agree to appropriate methods of implementation, outcomes and performance indicators |
| 2. Communicate workplace sustainability policy | 2.1 Promote workplace sustainability policy, including its expected outcome, to key stakeholders<br>2.2 Inform those involved in implementing the policy about expected outcomes, activities to be undertaken and assigned responsibilities |
| 3. Implement workplace sustainability policy | 3.1 Develop and communicate procedures to help implement workplace sustainability policy<br>3.2 Implement strategies for continuous improvement in resource efficiency<br>3.3 Establish and assign responsibility for recording systems to track continuous improvements in sustainability approaches |
| 4. Review workplace sustainability policy implementation | 4.1 Document outcomes and provide feedback to key personnel and stakeholders<br>4.2 Investigate successes or otherwise of policy<br>4.3 Monitor records to identify trends that may require remedial action and use to promote continuous improvement of performance<br>4.4 Modify policy and or procedures as required to ensure improvements are made |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 1.2, 4.2, 4.3 | • Identifies, analyses and evaluates complex textual information to determine legislative and regulatory requirements, trends and outcomes |
| Writing | 1.2-1.7, 2.1, 2.2, 3.1, 3.3, 4.1, 4.3, 4.4 | • Researches, plans and prepares documentation using format and language appropriate to context, organisational requirements and audience |
| Oral Communication | 1.2, 1.3, 2.1, 2.2, 3.1, 4.1 | • Presents information and seeks advice using language appropriate to audience<br>• Participates in discussions using listening and questioning to elicit the views of others and to clarify or confirm understanding |
| Numeracy | 1.5, 4.3 | • Interprets and uses mathematical equations to calculate numerical information relating to time durations and costs |
| Navigate the world of work | 1.1-1.6, 3.1, 4.4 | • Develops, monitors and modifies organisational policies and procedures in accordance with legislative requirements and organisation goals |
| Interact with others | 1.2, 1.3, 2.1, 2.2, 3.1, 3.3, 4.1, 4.3 | • Selects and uses appropriate conventions and protocols when communicating with internal and external stakeholders to seek or share information<br>• Plays a lead role in consulting and negotiating positive outcomes with a range of stakeholders |
| Get the work done | 1.2, 1.4-1.7, 2.3, 2.4, 3.1, 3.2, 3.3, 3.5, 3.6, 4.1, 4.3, 4.4 | • Plans, organises and implements work activities of self and others that ensure compliance with organisational policies and procedures, and legislative requirements<br>• Sequences and schedules complex activities, monitors implementation, and manages relevant communication<br>• Uses systematic, analytical processes in relatively complex, situations, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Evaluates outcomes of decisions to identify opportunities for improvement |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBSUS501 Develop workplace policy and | BSBSUS501A Develop workplace policy and procedures | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| procedures for sustainability | for sustainability | Minor edits to clarify performance criteria | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBSUS501 Develop workplace policy and procedures for sustainability

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- scope and develop organisational policies and procedures that comply with legislative requirements and support the organisation's sustainability goals covering at a minimum:
  - minimising resource use
  - resource efficiency
  - reducing toxic material and hazardous chemical use
  - employing life cycle management approaches
  - continuous improvement
- plan and implement sustainability policy and procedures including:
  - agreed outcomes
  - performance indicators
  - activities to be undertaken
  - assigned responsibilities
  - record keeping, review and improvement processes
- consult and communicate with relevant stakeholders to generate engagement with sustainability policy development, implementation and continuous improvement
- review and improve sustainability policies.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the environmental or sustainability legislation, regulations and codes of practice applicable to the organisation identify internal and external sources of information and explain how they can be used to plan and develop the organisation's sustainability policy


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- explain policy development processes and practices
- outline organisational systems and procedures that relate to sustainability
- outline typical barriers to implementing policies and procedures in an organisation and possible strategies to address them.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the sustainability field of work and include access to:

- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBWHS201 Contribute to health and safety of self and others

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to work in a manner that is healthy and safe in relation to self and others and to respond to emergency incidents. It covers following work health and safety (WHS) and emergency procedures and instructions, implementing WHS requirements and participating in WHS consultative processes.

It applies to individuals who require a basic knowledge of WHS to carry out work in a defined context under direct supervision or with some individual responsibility, in a range of industry and workplace contexts.

NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the Model WHS *Act* has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Work safely | 1.1 Follow provided safety procedures and instructions when |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | working<br>1.2 Carry out pre start systems and equipment checks according to workplace procedures<br>1.3 Follow workplace procedures for responding to emergency incidents |
| 2. Implement work safety requirements | 2.1 Identify designated persons to whom queries and concerns about safety in the workplace should be directed<br>2.2 Identify existing and potential hazards in the workplace, report them to designated persons and record them according to workplace procedures<br>2.3 Identify and implement WHS procedures and work instructions<br>2.4 Identify and report emergency incidents and injuries to designated persons according to workplace procedures<br>2.5 Identify WHS duty holders and their duties for own work area |
| 3. Participate in WHS consultative processes | 3.1 Contribute to workplace meetings, inspections and other WHS consultative activities<br>3.2 Raise WHS issues with designated persons according to organisational procedures<br>3.3 Take actions to eliminate workplace hazards and reduce risks |

# Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.1, 2.3, 2.4, 2.5 | • Identifies and interprets information in relation to WHS and emergency incidents |
| Writing | 1.2, 2.2, 2.4, 3.2 | • Uses structures and language appropriate to audience and context in reports giving factual information |
| Oral Communication | 2.2, 2.3, 2.4, 3.1, 3.2 | • Uses structures and language appropriate to audience and context in reports, descriptions, opinions and explanations<br>• Extracts meaning from reports, |


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| | | |
|---|---|---|
| | | descriptions, opinions and explanations |
| Navigate the world of work | 1.1, 1.2, 1.3, 2.1,2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3 | • Takes responsibility for following WHS legal requirements<br>• Follows protocols and procedures related to own role<br>• Seeks assistance from others when WHS issues are beyond scope of immediate responsibilities |
| Get the work done | 1.1, 1.2, 1.3, 2.2, 2.3, 2.4, 3.1, 3.3 | • Plans, organises and implements routine tasks in order to optimise health and safety<br>• Selects and implements actions from predetermined procedures |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBWHS201 Contribute to health and safety of self and others | BSBWHS201A Contribute to health and safety of self and others | Updated to meet Standards for Training Packages<br><br>Minor edits to clarify intent of performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBWHS201 Contribute to health and safety of self and others

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- follow all relevant procedures and instructions relating to work health and safety (WHS) and emergency incidents
- identify and report hazards to designated personnel
- contribute to WHS consultative processes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain workplace safety procedures and instructions including:
  - checking systems and equipment
  - conducting routine work operations
  - requirements for personal protective equipment (PPE)
  - how to report incidents and injuries
- explain emergency procedures including those for fires and incidents
- define the meaning of commonly used hazard signs and safety symbols
- summarise the duty holder responsibilities, as specified in WHS Acts, regulations and codes of practice, of:
  - self and fellow workers
  - persons conducting businesses or undertakings (PCBUs)
  - officers
  - others in the workplace
- explain the difference between hazards and risks


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- describe typical WHS hazards that may be present in the workplace, the harm they can cause and how this harm occurs
- outline the process of hazard identification and risk reduction.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals carrying out work health and safety duties in the workplace and include access to:

- relevant organisational policies, standard operating procedures and work instructions
- relevant Acts, regulations, codes of practice
- workplace tools, equipment and resources
- personal protective equipment appropriate to the role and work area.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBWHS304 Participate effectively in WHS communication and consultation processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to participate in work health and safety (WHS) communication and consultation processes.

It applies to individuals who participate in WHS communication and consultation processes as part of their work health and safety responsibilities, which are in addition to their main duties.

NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Contribute to | 1.1 Apply knowledge of WHS Acts, regulations, codes of practice, |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| establishing and running WHS consultation and participation processes | policies and procedures to contribute to the development and running of WHS consultation and participation processes<br>1.2 Identify and communicate barriers to effective WHS consultation and participation processes<br>1.3 Contribute to removing these barriers<br>1.4 Identify, record and communicate to others, the duties, rights and responsibilities of individuals and parties in the consultation process |
| 2. Raise WHS issues with others | 2.1 Raise relevant WHS issues in meetings and support others to do this<br>2.2 Record and communicate WHS discussions and their outcomes in accordance with workplace procedures<br>2.3 Effectively follow up the outcomes of meetings as appropriate<br>2.4 Communicate outcomes of these meetings to others |
| 3. Contribute to obtaining and communicating information about WHS issues | 3.1 Identify sources of WHS information<br>3.2 Use tools and techniques to locate and obtain WHS information<br>3.3 Communicate relevant WHS information to others using appropriate communication methods |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.4, 3.1, 3.2 | • Interprets a range of textual information to determine regulatory and procedural requirements and necessary actions |
| Writing | 1.2, 1.4, 2.2, 2.4, 3.3 | • Records key information in a sequential manner using required format, correct grammar and industry specific vocabulary |
| Oral Communication | 1.2, 1.4, 2.1, 2.2, 2.4, 3.3 | • Present information using language and non-verbal features appropriate to audience<br>• Uses questioning and listening techniques to obtain feedback from others and resolve issues |
| Navigate the | 1.1, 2.2 | • Follows policies, procedures and legislative |


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| | | |
|---|---|---|
| world of work | | requirements relevant to own role |
| Interact with others | 1.1, 1.4, 2.1, 2.2, 2.4, 3.3 | • Selects and uses appropriate conventions and protocols when communicating with others in a range of work contexts<br>• Uses appropriate interpersonal skills to encourage contributions and elicit ideas from others |
| Get the work done | 1.1-1.4, 2.1, 2.3, 3.1-3.3 | • Sequences and schedules activities, monitors implementation and manages relevant communication<br>• Identifies barriers to consultation and applies problem solving processes to determine possible solutions<br>• Uses the main features and functions of digital tools to access information or communicate effectively |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBWHS304 Participate effectively in WHS communication and consultation processes | BSBWHS304A Participate effectively in WHS communication and consultation processes | Updated to meet Standards for Training Packages<br><br>Minor edits to clarify intent of performance criteria | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBWHS304 Participate effectively in WHS communication and consultation processes

## Modification History

| Release | Comments |
|---|---|
| Revision 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- participate in work health and safety (WHS) communication and consultation processes, including communicating WHS information to others
- raise WHS issues in meetings and follow up on outcomes
- take appropriate actions to remove barriers to communication and consultation processes
- support others to raise relevant WHS issues.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the purpose of organisational WHS policies, procedures, processes and systems
- outline the key requirements of relevant commonwealth and state/territory WHS Acts, regulations, codes of practice, standards and guidance material, and other relevant publications
- describe potential barriers to WHS consultation processes and how the barriers may be overcome
- explain the roles and responsibilities of WHS personnel
- describe how the consultation process influences and is related to workplace information management procedures, processes and systems
- describe methods to engage others with workplace procedures, and information sourcing and sharing.


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## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals carrying out work health and safety duties in the workplace and include access to:

- organisational policies, standard operating procedures, procedures and plans with information on compliance requirements
- relevant Acts, regulations, codes of practice, licensing requirements, standards
- relevant WHS data files
- appropriate office equipment and resources.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBWHS403 Contribute to implementing and maintaining WHS consultation and participation processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to contribute to setting up, running and improving work health and safety (WHS) consultation and participation processes that are prescribed in legislation. It also covers contributing to communicating relevant information identifying and delivering related training and improving the consultation and participation processes.

This unit applies to individuals whose job role includes contributing to implementing and maintaining WHS consultation and participation processes in their work area and job role.

This unit applies to people who work in a broad range of WHS roles across all industries.

NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Identify individuals and parties involved in WHS consultation and participation processes | 1.1 Apply knowledge of relevant parts of WHS Acts, regulations, codes of practice, policies and procedures to identify individuals and parties with roles, duties, rights and responsibilities regarding WHS consultation and participation<br>1.2 Identify what these roles, duties, rights and responsibilities are and, in line with own job role and work area, communicate this information to individuals and parties<br>1.3 Identify roles, duties, rights and responsibilities as they apply to own job role and work area |
| 2 Contribute to WHS consultation and participation processes | 2.1 Identify workplace WHS consultation and participation processes<br>2.2 Contribute to setting up and running these processes as appropriate to own job role and work area<br>2.3 Communicate to individuals and parties what these processes are and promote and support the participation of individuals and parties as appropriate to own job role and work area |
| 3 Contribute to processes for communicating and sharing WHS information and data | 3.1 Identify consultation and participation processes for communicating and sharing WHS information and data<br>3.2 Contribute to and participate in these processes, as appropriate to own job role and work area |
| 4 Contribute to identifying and meeting training requirements for effective WHS consultation and participation | 4.1 Identify training requirements for individuals and parties necessary for effective WHS consultation and participation<br>4.2 Contribute to the delivery of required training as appropriate to own job role and work area |
| 5 Contribute to improving WHS consultation and participation processes | 5.1 Contribute to the identification and assessment of barriers to the implementation and effectiveness of WHS consultation and participation processes<br>5.2 Contribute to the development, implementation and evaluation of measures to remove these barriers |


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# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3, 2.1, 3.1, 4.1 | • Interprets and analyses complex WHS legislative and organisational texts |
| Writing | 1.2, 2.2, 2.3, 4.1, 4.2, 5.1, 5.2 | • Uses structure, layout and language suitable for audience to draft and document WHS legislative and organisational information<br>• Records required WHS information using appropriate organisational formats |
| Oral communication | 1.2, 2.2, 2.3 | • Uses structure and language suitable for audience to provide WHS legislative and organisational information<br>• Uses questioning and active listening to identify and discuss training requirements and barriers to WHS consultation processes |
| Navigate the world of work | 1.1-1.3 | • Takes responsibility for adherence to legal and regulatory responsibilities in relation to WHS role and responsibilities<br>• Keeps up to date on changes to WHS legislation or regulations |
| Interact with others | 2.2, 2.3, 3.1, 3.2, 4.2, 5.1, 5.2 | • Understands what to communicate, with whom and how in context of consultation and participation processes<br>• Uses a range of strategies to establish a sense of connection with others<br>• Cooperates with others as part of WHS consultation and participation processes, and contributes to specific activities requiring joint responsibility and accountability<br>• Initiates and contributes to facilitating consultative process, responding, explaining, clarifying and expanding on ideas and information as required |
| Get the work done | 2.1, 2.2, 3.1, 4.1, 5.1, 5.2 | • Applies formal processes when organising consultation processes, producing plans with logically sequenced steps, reflecting some awareness of time and resource constraints and the needs of others<br>• Implements actions as per plans, making slight adjustments as necessary and addressing some unexpected issues |


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| | | |
|---|---|---|
| | | • Uses formal decision-making processes, setting or clarifying goals, gathering information and identifying and evaluating choices against a set of criteria<br>• Uses formal and informal processes to monitor implementation of measures and reflect on outcomes<br>• Uses familiar digital systems and tools to access, organise, analyse and present information |

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# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBWHS403 Contribute to implementing and maintaining WHS consultation and participation processes | BSBWHS403A Contribute to implementing and maintaining WHS consultation and participation processes | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBWHS403 Contribute to implementing and maintaining WHS consultation and participation processes

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- explain clearly and accurately to individuals and parties the legal roles, duties, rights and responsibilities of self and others regarding work health and safety (WHS) consultation and participation processes
- contribute, as appropriate to job role and work area, to:
  - setting up and running WHS consultation and participation processes to ensure that relevant individuals and parties understand and can participate in the processes
  - identifying training needs to support the WHS consultation and participation processes and providing learning opportunities, coaching and mentoring as appropriate to needs
  - communicating information and data about WHS consultation and participation processes
  - identifying barriers to effective WHS consultation and participation and developing, implementing and evaluating measures to remove the barriers.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe requirements under WHS legislation and organisational policies and procedures for consultation and participation processes and the individuals and parties who need to participate
- describe possible barriers to the implementation and effectiveness of WHS consultation and participation processes and strategies to remove them
- identify internal and external sources of WHS information and data and how to access them


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- describe training requirements for individuals and parties necessary for effective WHS consultation and participation processes

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals carrying out work health and safety duties in the workplace and include access to:

- office equipment and resources
- relevant Acts, regulations, codes of practice, standards and guidelines
- workplace documentation and personnel.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBWHS501 Ensure a safe workplace

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to establish, maintain and evaluate the organisation's work health and safety (WHS) policies, procedures and programs in the relevant work area, according to WHS legislative requirements. It takes a systems approach and addresses compliance with relevant legislative requirements.

This unit applies to managers working in a range of contexts who have, or are likely to have responsibility for WHS as part of their broader management role. It is relevant for people with obligations under WHS legislation, for example persons conducting a business or undertaking (PCBUs) or officers, as defined by relevant legislation.

NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1 Establish a WHS management system in a work area | 1.1 Locate, adapt, adopt and communicate WHS policies that clearly define the organisation's commitment to complying with WHS legislation<br>1.2 Identify duty holders and define WHS responsibilities for all workplace personnel in the work area according to WHS legislation, policies, procedures and programs<br>1.3 Identify and approve financial and human resources required by the WHS management system (WHSMS) |
| 2 Establish and maintain effective and compliant participation arrangements for managing WHS in a work area | 2.1 Work with workers and their representatives to set up and maintain participation arrangements according to relevant WHS legislation<br>2.2 Appropriately resolve issues raised through participation and consultation arrangements according to relevant WHS legislation<br>2.3 Promptly provide information about the outcomes of participation and consultation to workers and ensure it is easy for them to access and understand |
| 3 Establish and maintain procedures for effectively identifying hazards, and assessing and controlling risks in a work area | 3.1 Develop procedures for ongoing hazard identification, and assessment and control of associated risks<br>3.2 Include hazard identification at the planning, design and evaluation stages of any change in the workplace to ensure that new hazards are not created by the proposed changes and existing hazards are controlled<br>3.3 Develop and maintain procedures for selecting and implementing risk controls according to the hierarchy of control and WHS legislative requirements<br>3.4 Identify inadequacies in existing risk controls according to the hierarchy of control and WHS legislative requirements, and promptly provide resources to enable implementation of new measures<br>3.5 Identify requirements for expert WHS advice, and request this advice as required |
| 4 Evaluate and maintain a work area WHS management system | 4.1 Develop and provide a WHS induction and training program for all workers in a work area as part of the organisation's training program<br>4.2 Use a system for WHS record keeping to allow identification of patterns of occupational injury and disease in the organisation, and to maintain a record of WHS decisions made, including reasons for the decision<br>4.3 Measure and evaluate the WHSMS in line with the |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | organisation's quality systems framework<br>4.4 Develop and implement improvements to the WHSMS to achieve organisational WHS objectives<br>4.5 Ensure compliance with the WHS legislative framework to achieve, as a minimum, WHS legal requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 4.2, 4.3, 4.5 | • Organises, evaluates and critiques ideas and information from WHS legislation, policies, procedures and programs |
| Writing | 1.1, 2.3, 3.2, 3.5, 4.1, 4.2 | • Produces WHS policies, procedures and programs<br>• using appropriate vocabulary, grammatical structure and conventions to produce<br>• Records WHS decisions according to organisational requirements |
| Oral communication | 1.1, 2.1, 2.2, 2.3 | • Presents and seeks information from others using structure and language suitable for the audience<br>• Provides information on resolution of WHS issues varying level of technical vocabulary to suit audience |
| Numeracy | 1.3 | • Selects from, and applies, an expanding range of mathematical and problem solving strategies in identifying financial and human resources required |
| Navigate the world of work | 1.1, 1.2, 2.1, 2.2, 3.3, 3.4, 4.5 | • Monitors adherence to legal and regulatory rights and responsibilities for self and others in relation to WHS<br>• Takes responsibility for developing, implementing and reviewing policies, procedures and processes in accordance with organisational and legislative requirements |
| Interact with others | 1.1, 2.1, 2.3, 3.5 | • Plays a lead role in situations requiring effective collaboration demonstrating the ability to guide discussions and negotiate agreeable outcomes<br>• Provides feedback to others in forms they can |


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| | | |
|---|---|---|
| | | understand and use |
| Get the work done | 1.1, 1.3, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2 4.3, 4.4, 4.5 | • Develops plans or processes to manage relatively complex, WHS management tasks with an awareness of how they contribute to operational and strategic goals<br>• Uses systematic, analytical processes, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria<br>• Considers whether, and how, others should be involved, using consultative or collaborative processes as an integral part of the decision-making process<br>• Uses digital systems and tools to enter, store and retrieve relevant information |

## Range of Conditions

*This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.*

| | |
|---|---|
| WHS legislation must include: | • applicable Commonwealth and state or territory WHS Acts, regulations and codes of practice. |

## Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBWHS501 Ensure a safe workplace | BSBWHS501A Ensure a safe workplace | Updated to meet Standards for Training Packages | Equivalent unit |

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBWHS501 Ensure a safe workplace

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- establish, implement, maintain and evaluate a work health and safety (WHS) management system for a work area of an organisation in accordance with WHS legislation including policies, procedures and record keeping
- ensure organisational WHS compliance
- establish, implement, maintain and evaluate effective and compliant participation arrangements for managing WHS including identifying duty holders, identifying and approving the required resources and developing and implementing a training program
- establish, implement, maintain and evaluate procedures for effectively identifying hazards, and assessing and controlling risks using the hierarchy of risk control
- provide information and complete documentation for a WHS management system
- identify requirements for and request expert WHS advice.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and detail relevant WHS Acts, regulations and codes of practice
- specify relevant WHS organisational policies, procedures, programs and practices
- explain hazard identification and risk-management processes
- describe the hierarchy of risk control and how it is applied in the workplace
- specify in-house and WHS legislative reporting requirements.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals carrying out work health and safety duties in the workplace and include access to:

- organisational WHS policies and procedures
- WHS legislation, regulations and codes of practice
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBWHS504 Manage WHS risks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to conduct work health and safety (WHS) risk management processes.

It applies to individuals who manage WHS risks, based on the organisation's WHS management system (WHSMS), WHS information system (WHSIS) and risk-management approach (as covered in BSBWHS503 Contribute to the systematic management of WHS risk). These individuals will work in a range of WHS roles across all industries and apply a substantial knowledge base and well-developed skills in a wide variety of WHS contexts.

NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Access information and | 1.1 Identify sources of information and data |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| data on WHS hazards and risk management | 1.2 Obtain information and data to determine the nature and scope of hazards, the range of harms they may cause, and how these harms are caused<br>1.3 Obtain information and data to determine techniques, tools and processes to assess risk associated with identified hazards, and identify risk control options |
| 2 Prepare to manage WHS risks | 2.1 Apply knowledge of the organisation's WHSMS and WHSIS to identify WHS risk management requirements<br>2.2 Apply knowledge of WHS legislation to identify duty holders and legislative requirements for WHS risk management |
| 3 Develop and implement WHS risk-management processes | 3.1 Apply techniques, tools and processes to identify hazards, assess associated risks and identify risk control options<br>3.2 Apply knowledge of hazards and risks to select appropriate risk controls<br>3.3 Develop and implement a risk control plan and evaluate risk controls<br>3.4 Carry out hazard identification and risk management according to organisational and legal requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.1, 1.2, 1.3 | • Organises, interprets evaluates and critiques ideas and information in relation to WHS risk management |
| Writing | 3.1, 3.2, 3.3, 3.4 | • Uses industry specific terminology and appropriate formats to draft and develop risk control plans and processes<br>• Records results of risk-management processes according to organisational requirements |
| Navigate the world of work | 2.1, 2.2, 3.4 | • Monitors adherence to legal, regulatory and organisational rights and responsibilities for self and others in relation to WHS risk management |


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| | | |
|---|---|---|
| Interact with others | 3.1, 3.2, 3.3 | • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction and taking a leadership role when required |
| Get the work done | 1.2, 1.3, 3.1, 3.2, 3.3 | • Uses logical planning processes, and an increasingly intuitive understanding of context, to identify relevant information and risks, and to identify and evaluate strategies and resources for risk management planning<br>• Sequences and schedules complex activities, monitors implementation, and manages relevant communication in relation to risk management planning<br>• Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, identifying and evaluating options against agreed criteria<br>• Uses common digital systems and tools to locate and store information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBWHS504 Manage WHS risks | BSBWHS504A Manage WHS hazards and risks | Updated to meet Standards for Training Packages.<br><br>Title change | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBWHS504 Manage WHS risks

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- access information and data on hazards and how to manage associated risks
- identify duty holders and legislative requirements for work health and safety (WHS) risk management
- use the organisation's WHS management system (WHSMS) and WHS information system (WHSIS) to conduct the following risk management processes:
  - identify hazards and potential hazards
  - assess the associated risks
  - identify control options
  - select suitable options
  - develop and implement a risk control plan
  - evaluate risk controls
- carry out hazard identification and risk management.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the basic principles of workplace incident, injury and disease causation
- explain the meanings of 'hazard' and 'risk' and how they differ
- identify formal and informal communication and consultation processes and key personnel related to communication
- describe how the characteristics and composition of the workforce impact on WHS risk and the management of WHS, including:
  - communication skills
  - cultural background and diversity


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  - gender
  - labour market changes
  - language, literacy and numeracy levels of the workforce
  - structure and organisation of the workforce, including part-time, casual and contract workers; shift rosters and geographical location
  - workers with specific needs and limitations
  - workplace culture in relation to alcohol and other drug use
- identify internal and external sources of WHS information and data and how to access them
- explain the limitations of generic hazard identification and risk assessment checklists and risk ranking processes
- outline methods for providing evidence of compliance with WHS legislation
- describe the nature of workplace processes (work flow, planning and control) and hazards relevant to the workplace
- describe organisational culture as it impacts on the work team
- summarise organisational WHS policies, procedures, processes and systems
- list other functional areas that impact on the management of WHS
- outline the principles and practices of a systematic approach to managing WHS
- outline Commonwealth and state or territory WHS Acts, regulations, codes of practice, standards and guidance material and other publications relevant to the organisation
- outline risk management as a duty of persons conducting businesses or undertakings or officers under WHS legislation
- describe the roles and responsibilities of individuals and parties under WHS legislation
- outline standard industry controls for a range of hazards
- identify techniques, tools and processes for identifying health and safety hazards and assessing and controlling the associated risks, including:
  - hazard and risk checklists
  - hazard hunts
  - job safety analyses
  - manifests and registers, including for dangerous goods, hazardous chemicals and plant
  - safe work method statements
  - surveys using questionnaires, interviews and other survey techniques
  - workplace inspections and walk-throughs.

# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals carrying out work health and safety duties in the workplace and include access to:

- workplace policies and procedures
- office equipment and resources


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- relevant Acts, regulations, codes of practice, standards and guidelines relating to risks found in the workplace
- case studies and, where possible, real situations.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBWOR301 Organise personal work priorities and development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to organise own work schedules, to monitor and obtain feedback on work performance and to maintain required levels of competence.

This unit applies to individuals who exercise discretion and judgement and apply a broad range of competencies in various work contexts.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Industry Capability – Workplace Effectiveness

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Organise and complete own work schedule | 1.1 Ensure that work goals, objectives or Key Performance Indicators (KPIs) are understood, negotiated and agreed in accordance with organisational requirements<br>1.2 Assess and prioritise workload to ensure tasks are completed within identified timeframes<br>1.3 Identify factors affecting the achievement of work objectives and incorporate contingencies into work plans<br>1.4 Use business technology efficiently and effectively to manage |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | and monitor scheduling and completion of tasks |
| 2. Monitor own work performance | 2.1 Accurately monitor and adjust personal work performance through self assessment to ensure achievement of tasks and compliance with legislation and work processes or KPIs<br>2.2 Ensure that feedback on performance is actively sought and evaluated from colleagues and clients in the context of individual and group requirements<br>2.3 Routinely identify and report on variations in the quality of and products and services according to organisational requirements<br>2.4 Identify signs of stress and effects on personal wellbeing<br>2.5 Identify sources of stress and access appropriate supports and resolution strategies |
| 3. Co-ordinate personal skill development and learning | 3.1 Identify personal learning and professional development needs and skill gaps using self assessment and advice from colleagues and clients in relation to role and organisational requirements<br>3.2 Identify, prioritise and plan opportunities for undertaking personal skill development activities in liaison with work groups and relevant personnel<br>3.3 Access, complete and record professional development opportunities to facilitate continuous learning and career development<br>3.4 Incorporate formal and informal feedback into review of further learning needs |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.1-3.4 | • Employs a range of approaches and investigative techniques to source the knowledge necessary to arrange personal learning experiences |
| Reading | 1.1, 1.2, 2.1 | • Interprets textual information to determine organisation's procedures, own work performance and objectives |


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| | | |
|---|---|---|
| Writing | 1.3, 1.4, 2.3, 3.1, 3.2, 3.3 | • Prepares written reports and workplace documents that communicate information clearly and effectively |
| Oral Communication | 2.2, 2.3, 3.1, 3.2 | • Clearly gives and receives feedback using specific and relevant language<br>• Uses listening and questioning techniques to confirm understanding |
| Numeracy | 1.1, 1.3 | • Understands responsibilities and scope of role and complies with organisational policies, procedures and protocols |
| Interact with others | 1.1, 2.2, 2.3, 3.1, 3.2 | • Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role<br>• Fosters and nurtures a culture of constructive and respectful feedback<br>• Proactively collaborates with others to achieve specific goals |
| Get the work done | 1.2, 1.3, 1.4, 2.4, 2.5, 3.2 | • Plans and organises work commitments to ensure deadlines and objectives are met<br>• Uses formal analytical thinking techniques to recognise and respond to routine problems<br>• Uses digital systems and tools to enter, store and monitor information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBWOR301 Organise personal work priorities and development | BSBWOR301B Organise personal work priorities and development | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBWOR301 Organise personal work priorities and development

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare a work plan according to organisational requirements and work objectives
- use business technology to schedule, prioritise and monitor completion of tasks in a work plan
- assess and prioritise own work load and deal with contingencies
- monitor and assess personal performance against job role requirements by seeking feedback from colleagues and clients
- identify personal development needs and access, complete and record skill development and learning.

Note: if a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline key provisions of legislation that relate to own work role
- describe goals, objectives or key performance indicators of own work role
- explain ways to elicit, analyse and interpret feedback when communicating with other people in the workplace
- explain the principles and techniques of goal setting, measuring performance, time management and personal assessment of learning and development needs
- explain signs and sources of stress and strategies to deal with stress in the workplace
- identify methods to identify and prioritise personal learning needs.


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# Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the industry capability - workplace effectiveness field of work and include access to:

- office equipment and resources
- work schedules and performance improvement plans
- workplace documentation and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBWOR404 Develop work priorities

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with BSB Business Services Training Package Version 1.1.<br>Version created to correct mapping table information |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to monitor and obtain feedback on own work performance and access learning opportunities for professional development.

This unit applies to individuals who are required to design their own work schedules and work plans and to establish priorities for their work. They will typically hold some responsibilities for the work of others and have some autonomy in relation to their own role.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Industry Capability – Workplace Effectiveness

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan and complete own work schedule | 1.1 Prepare workgroup plans which reflect consideration of resources, client needs and workgroup targets<br>1.2 Analyse and incorporate work objectives and priorities into personal schedules and responsibilities |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.3 Identify factors affecting the achievement of work objectives and establish contingencies and incorporate them into work plans<br>1.4 Efficiently and effectively use business technology to manage and monitor planning completion and scheduling of tasks |
| 2. Monitor own work performance | 2.1 Identify and analyse personal performance through self-assessment and feedback from others on the achievement of work objectives<br>2.2 Seek and evaluate feedback on performance from colleagues and clients in the context of individual and group requirements<br>2.3 Routinely identify and report on variations in the quality of service and performance in accordance with organisational requirements |
| 3. Co-ordinate professional development | 3.1 Assess personal knowledge and skills against organisational benchmarks to determine development needs and priorities<br>3.2 Research and identify sources and plan for opportunities for improvement in consultation with colleagues<br>3.3 Use feedback to identify and develop ways to improve competence within available opportunities<br>3.4 Identify, access and complete professional development activities to assist career development<br>3.5 Store and maintain records and documents relating to achievements and assessments in accordance with organisational requirements |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Learning | 3.1, 3.2, 3.3, 3.4 | • Develops strategies to reflect on own performance, obtain feedback, and plan and source professional development opportunities |
| Reading | 1.2, 2.1, 2.3, 3.1, 3.5 | • Recognises and interprets textual information from relevant sources to understand organisation's policies and practices |


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| | | |
|---|---|---|
| Writing | 1.1, 1.3, 2.2, 2.3, 3.2, 3.5 | • Prepares written reports and workplace documentation that communicate complex information clearly and effectively |
| Oral Communication | 2.2, 2.3, 3.2 | • Provides or seeks information using language suitable to audience and context<br>• Employs listening and questioning techniques to confirm understanding |
| Numeracy | 1.1, 1.2, 1.3 | • Interprets numerical information related to budgets and timeframes |
| Navigate the world of work | 1.2, 2.1, 2.3, 3.1, 3.5 | • Identifies and understands roles and responsibilities in relation to organisational objectives, policies and procedures |
| Interact with others | 2.2, 2.3, 3.2 | • Selects and uses appropriate practices when communicating with internal and external stakeholders to seek or share information<br>• Establishes and builds rapport and relationships with others to foster a culture of trust and honesty in communications |
| Get the work done | 1.1-1.4, 2.3, 3.1, 3.2, 3.4, 3.5 | • Plans, organises and implements tasks to meet organisational requirements<br>• Systematically gathers and analyses information and evaluates options in order to anticipate potential problems and develop contingency plans<br>• Uses the main features and functions of digital technologies and tools to complete work tasks efficiently and effectively |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBWOR404 Develop work priorities | BSBWOR404B Develop work priorities | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBWOR404 Develop work priorities

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version first released with BSB Business Services Training Package Version 1.1.<br>Version created to correct mapping table information |
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- prepare and communicate own work plan
- schedule work objectives and tasks to support the achievement of the workgroup goals
- review own work performance against workgroup objectives through self-assessment and seeking and acting on feedback from clients and colleagues
- plan and access learning opportunities to extend personal work competencies.

Note: if a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain how business technology applications can be used to schedule tasks and plan work
- explain techniques to prepare personal plans and establish priorities
- identify methods to identify and prioritise personal learning needs
- outline a range of professional development options
- explain methods to elicit, analyse and interpret feedback
- provide a detailed explanation of methods that can be used to evaluate own performance.


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## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the industry capability - workplace effectiveness field of work and include access to:

- workplace documentation including policies and procedures, and benchmarks for work group productivity and performance
- workplace equipment and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# BSBWOR502 Lead and manage team effectiveness

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to lead teams in the workplace and to actively engage with the management of the organisation.

It applies to individuals working at a managerial level who facilitate work teams and build a positive culture within their work teams. At this level, work will normally be carried out using complex and diverse methods and procedures requiring the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

## Unit Sector

Industry Capability – Workplace Effectiveness

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Establish team performance plan | 1.1 Consult team members to establish a common understanding of team purpose, roles, responsibilities and accountabilities in accordance with organisational goals, plans and objectives<br>1.2 Develop performance plans to establish expected outcomes, outputs, key performance indicators (KPIs) and goals for work team<br>1.3 Support team members in meeting expected performance |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | outcomes |
| 2. Develop and facilitate team cohesion | 2.1 Develop strategies to ensure team members have input into planning, decision making and operational aspects of work team<br>2.2 Develop policies and procedures to ensure team members take responsibility for own work and assist others to undertake required roles and responsibilities<br>2.3 Provide feedback to team members to encourage, value and reward individual and team efforts and contributions<br>2.4 Develop processes to ensure that issues, concerns and problems identified by team members are recognised and addressed |
| 3. Facilitate teamwork | 3.1 Encourage team members and individuals to participate in and to take responsibility for team activities, including communication processes<br>3.2 Support the team in identifying and resolving work performance problems<br>3.3 Ensure own contribution to work team serves as a role model for others and enhances the organisation's image for all stakeholders |
| 4. Liaise with stakeholders | 4.1 Establish and maintain open communication processes with all stakeholders<br>4.2 Communicate information from line manager/management to the team<br>4.3 Communicate unresolved issues, concerns and problems raised by team members and follow-up with line manager/management and other relevant stakeholders<br>4.4 Evaluate and take necessary corrective action regarding unresolved issues, concerns and problems raised by internal or external stakeholders |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|


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| | | |
|---|---|---|
| Reading | 1.1, 4.4 | • Analyses and interprets textual information from the organisation's policies, goals and objectives to establish team goals or to determine corrective action |
| Writing | 1.2, 2.1, 2.2, 2.4, 4.2, 4.3, 4.4 | • Prepares written reports and workplace documentation that communicate complex information clearly and effectively |
| Oral Communication | 1.1, 2.3, 3.1, 4.1, 4.2, 4.3 | • Engages in discussions or provides information using appropriate vocabulary and non-verbal features<br>• Uses listening and questioning techniques to confirm understanding and to engage the audience |
| Navigate the world of work | 1.1, 2.1, 2.2, 3.3 | • Understands how own role contributes to broader organisational goals<br>• Modifies or develops policies and procedures to achieve organisational goals |
| Interact with others | 1.1, 1.3, 2.2, 2.3, 3.1, 3.2, 4.2, 4.3 | • Selects and uses appropriate conventions and protocols when communicating with diverse stakeholders<br>• Uses interpersonal skills to gain trust and confidence of team and provides feedback to others in forms that they can understand and use<br>• Adapts personal communication style to build positive working relationships and to show respect for the opinions, values and particular needs of others<br>• Plays a lead role in situations requiring effective collaboration, demonstrating high level conflict resolution skills and ability to engage and motivate others |
| Get the work done | 1.2, 2.1, 2.2, 2.4, 3.2, 4.1, 4.3, 4.4 | • Develops, implements and monitors plans and processes to ensure team effectiveness<br>• Monitors and actively supports processes and development activities to ensure the team is focused on work outcomes<br>• Plans for unexpected outcomes and implements creative responses to overcome challenges |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| BSBWOR502 Lead and manage team effectiveness | BSBWOR502B Ensure team effectiveness | Updated to meet Standards for Training Packages | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | Title change | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# Assessment Requirements for BSBWOR502 Lead and manage team effectiveness

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with BSB Business Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- use leadership techniques and strategies to facilitate team cohesion and work outcomes including:
  - encouraging and fostering shared understanding of purpose, roles and responsibilities
  - identifying and resolving problems
  - providing feedback to encourage, value and reward others
  - modelling desired behaviour and practices
- develop policies and procedures to ensure team members take responsibility for own work and assist others to undertake required roles and responsibilities
- establish processes to address issues and resolve performance issues
- support team to meet expected performance outcomes including providing formal and informal learning opportunities as needed
- develop performance plans with key performance indicators (KPIs), outputs and goals for individuals or the team which incorporate input from stakeholders
- communicate effectively with a range of stakeholders about team performance plans and team performance
- facilitate two-way flow of information between team and management relevant to team performance
- evaluate and take necessary corrective action regarding unresolved issues, concerns and problems raised by internal or external stakeholders.

Note: if a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain how group dynamics can support or hinder team performance


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- outline strategies that can support team cohesion, participation and performance
- explain strategies for gaining consensus
- explain issue resolution strategies.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the industry capability - workplace effectiveness field of work and include access to:

- workplace documents
- case studies and, where possible, real situations
- office equipment and resources
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10


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# CPCCCM2007B Use explosive power tools

## Modification History

Minor changes made to range statement, including addition of photovoltaic (solar) panels

Equivalent to CPCCCM2007A

## Unit Descriptor

This unit of competency specifies the outcomes required to apply safe and effective operation of explosive power tools (EPT), used to fasten materials or fix fasteners to bases. It includes both direct action and indirect action explosive powered fastening tools.

## Application of the Unit

This unit of competency supports achievement of skills to safely and effectively use a range of EPT used in the construction industry.

## Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

| | |
|---|---|
| CPCCOHS2001A | Apply OHS requirements, policies and procedures in the construction industry |

## Employability Skills Information

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |



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# Elements and Performance Criteria

| | | | |
|---|---|---|---|
| 1 | Plan and prepare. | 1.1 | Work instructions, including plans, specifications, quality requirements and operational details, are obtained, confirmed and applied from relevant ***information*** for ***planning and preparation***. |
| | | 1.2 | ***Safety (OHS)*** requirements are followed in accordance with safety plans and policies. |
| | | 1.3 | Signage and barricade requirements are identified and implemented. |
| | | 1.4 | Plant, ***tools and equipment*** selected to carry out tasks are consistent with job requirements, checked for serviceability, and any faults are rectified or reported prior to commencement. |
| | | 1.5 | Material quantity requirements are calculated in accordance with plans and specifications. |
| | | 1.6 | ***Materials*** appropriate to work application are identified, obtained, prepared, safely handled and located ready for use. |
| | | 1.7 | ***Environmental requirements*** are identified for the project in accordance with environmental plans and ***statutory and regulatory authority*** obligations, and are applied. |
| 2 | Set out fasteners. | 2.1 | ***Minimum distances for set out*** from edge of substrate material are adhered to in accordance with legislation, regulations and codes of practice. |
| | | 2.2 | Material is located and temporarily held or fixed into designed position according to detailed drawings. |
| 3 | Use EPT. | 3.1 | EPT is checked for operation according to manufacturer specifications and safety (OHS) requirements for ***use of EPT***. |
| | | 3.2 | Fastener is selected according to requirements of job. |
| | | 3.3 | Charge is selected to assessed requirements for material, |


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| | | | base and penetration. |
| | | 3.4 | ***Attachments*** and accessories are installed to EPT in accordance with manufacturer specifications and safety (OHS) requirements. |
| | | 3.5 | ***Fastener and charge*** in EPT are located to manufacturer specifications. |
| | | 3.6 | EPT operation is carried out and fastener is fixed into place in accordance with manufacturer recommendations, legislation, regulations and codes of practice. |
| | | 3.7 | Fastening penetration is checked and appropriate depth into material is applied. |
| | | 3.8 | Power regulating device is adjusted for conditions. |
| | | 3.9 | Misfire procedures are carried out according to manufacturer recommendations, legislation, regulations and codes of practice. |
| | | 3.10 | Temporary holding and fixings are removed without damage to material. |
| 4 | Secure and store equipment and charges. | 4.1 | Charges are stored in designated container in accordance with legislation, regulations and codes of practice and used charges are recorded. |
| | | 4.2 | Unused fasteners, the EPT and attachments are stored in a carry case in line with manufacturer recommendations. |
| | | 4.3 | Logbook is checked and maintenance recorded according to manufacturer recommendations. |
| 5 | Maintain EPT and kit. | 5.1 | Safety features of tools are checked for serviceability in accordance with manufacturer operating manual. |
| | | 5.2 | Tools are cleaned and lubricated to manufacturer recommendations. |
| | | 5.3 | Periodic maintenance service is carried out to manufacturer specifications. |
| | | 5.4 | Diminished stocks of charges and fasteners are |


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| | | | replenished to designed effectiveness of EPT kit. |
| 6 | Clean up. | 6.1 | Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. |
| | | 6.2 | Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices. |

# Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

Required skills for this unit are:

- communication skills to:
  - determine requirements
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow instructions
  - read and interpret:
    - documentation from a variety of sources
    - drawings and specifications
  - report faults
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
  - written skills to record maintenance in logbook
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- numeracy skills to apply measurements and make calculations
- organisational skills, including the ability to plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
  - use a range of mobile technology, such as two-way radio and mobile phones
  - voice and hand signals to access and understand site-specific instructions.


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### Required knowledge

Required knowledge for this unit is:

- construction terminology
- EPT materials
- EPT charges and fasteners
- equipment safety manuals and instructions
- job safety analysis (JSA) and safe work method statements
- material safety data sheets (MSDS)
- materials storage and environmentally friendly waste management
- plans, specifications and drawings
- processes for the calculation of material requirements
- quality requirements
- relevant Acts, regulations and codes of practice
- security and storage procedures for equipment and charges
- types, characteristics, uses and limitations of plant, tools and equipment
- workplace and equipment safety requirements.

## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| **Overview of assessment** | This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures. |
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | A person who demonstrates competency in this unit must be able to provide evidence of the ability to:<br>• locate, interpret and apply relevant information, standards and specifications<br>• comply with site safety plan and OHS legislation, regulations and codes of practice applicable to workplace operations<br>• comply with organisational policies and |


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procedures, including quality requirements
- safely and effectively use tools and equipment
- communicate and work effectively and safely with others
- fix metal or timber to a steel, concrete or masonry base on one project of each to job specifications, including:
  - completion of stripping and assembly of the tool
  - completing log of serviceability
  - maintaining and cleaning
  - selecting charges and fasteners applicable to base material and material being fixed
  - misfire procedures
  - using attachments
  - complying with storage and security regulations and OHS requirements for the working environment
  - selecting signage
  - test fire.

**Context of and specific resources for assessment**

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the mandatory task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

Reasonable adjustments for people with disabilities


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must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

**Method of assessment**

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.


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# Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Information*** includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions where specified
- memos
- MSDS
- organisation work specifications and requirements
- plans and specifications
- regulatory and legislative requirements pertaining to using EPT
- relevant Australian standards
- safe work procedures related to using EPT
- signage
- verbal or written and graphical instructions
- work bulletins
- work schedules.

***Planning and preparation*** include:

- work site inspection
- equipment defect identification
- assessment of conditions and hazards
- determination of work requirements.

***Safety (OHS)*** is to be in accordance with legislation, regulations, codes of practice, organisational safety policies and procedures, and project safety plan and may include:

- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling of materials
- hazard control
- hazardous materials and substances
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
  - earth leakage boxes


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- lighting
- photovoltaic (solar) panels
- power cables, including overhead service trays, cables and conduits
- restricted access barriers
- surrounding structures
- traffic control
- trip hazards
- work site visitors and the public
- working at heights
- working in confined spaces
- working in proximity to others
- working with dangerous materials

- organisational first aid
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- use of firefighting equipment
- use of tools and equipment
- workplace environment and safety.

***Tools and equipment*** may include:

- direct action EPT
- indirect action EPT
- clamps and levels.

***Materials*** include:

- timber
- metals
- patented fasteners.

***Environmental requirements*** include:

- clean-up management
- noise and dust
- vibration
- waste management.

***Statutory and regulatory authorities*** include:

- federal, state and local authorities administering applicable Acts, regulations and codes of practice.

***Minimum distance for set out*** of

- regulated minimum distances
- bases, including concrete, masonry or steel.


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fasteners is to be in accordance with:

***Use of EPT*** includes:

- stripping and assembling tools
- completing log of serviceability
- maintaining and cleaning tools
- selecting charges and fasteners applicable to the base material and material being fixed
- misfire procedures
- using attachments
- complying with storage and security regulations and OHS requirements for the working environment
- selecting signage
- test fire.

***Attachments*** include:

- channel, rebate and other manufacturer attachments.

***Fastener and charge*** include:

- firing a test shot with misfire procedures, complying with the regulated safety procedure for misfire.

# Unit Sector(s)

**Functional area**

**Unit sector** Construction

# Custom Content Section

Not applicable.


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# CPCCDE3014A Remove non-friable asbestos

## Modification History

New to CPC08

Replaces unit CPCCDE3012A Encapsulate and remove asbestos

Not equivalent

## Unit Descriptor

This unit of competency specifies the outcomes required to remove non-friable asbestos containing material (ACM). The unit includes preparing, containing and removing non-friable ACM, and includes knowledge of decontamination and disposal requirements.

## Application of the Unit

Site location for work may be either domestic or commercial, and may be a demolition site, a new work site or an existing structure being renovated, extended, restored or maintained. Project sites may be construction sites and may also include ships, soils in relation to the non-friable asbestos removal process, and fences.

## Licensing/Regulatory Information

Occupational licenses are required nationally.

Work must be completed according to relevant legislative, industry, customer and organisational requirements, including work health and safety (WHS) policies and procedures.

Regulatory mechanisms apply to this unit. This unit is required for all ACM removal workers engaged in the removal of non-friable ACM. Candidates are advised to check for regulatory requirements.

## Pre-Requisites

CPCCOHS1001A Work safely in the construction industry



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# Employability Skills Information

This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

# Elements and Performance Criteria

| | | | |
|---|---|---|---|
| 1 | Prepare for asbestos removal. | 1.1 | Work instructions and asbestos removal control plan (ARCP) are obtained and confirmed for preparation purposes. |
| | | 1.2 | ***Safety requirements*** and data gathered from an on-site assessment, an asbestos register where available, and other information sources are used to prepare for a safe and compliant removal process. |
| | | 1.3 | ***Tools, equipment*** and ***personal protective equipment*** (PPE) consistent with job requirements are selected to carry out tasks and checked for serviceability; and faults are rectified or reported prior to commencement. |
| | | 1.4 | ARCP is accessed according to legislative and company requirements, and understood. |
| 2 | Prepare asbestos removal area and removal site. | 2.1 | ***Non-friable asbestos containing materials*** to be removed are identified, referring to the asbestos register or following clarification by an approved competent person as required and according to ***workplace procedures***. |
| | | 2.2 | Signage and barricade requirements are identified and implemented to delineate the work area. |
| | | 2.3 | Decontamination procedure is tested according to workplace procedures. |
| | | 2.4 | Materials and equipment required for removal of ACM |


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| | | | from ***project sites*** are identified, checked and prepared for operation. |
| | | 2.5 | Processes are undertaken to ensure the safety of the site, including deactivating or securing ***utilities*** where necessary prior to commencing work. |
| 3 | Isolate removal site. | 3.1 | ***Requirements to isolate the removal site*** safely are identified from the ARCP, and implemented according to legislative and company requirements. |
| | | 3.2 | Boundaries of asbestos removal site are designated according to ARCP requirements. |
| | | 3.3 | Occupants, neighbours and other affected parties are notified according to legislation and within limits of own responsibility and the code of practice. |
| 4 | Carry out asbestos removal process. | 4.1 | ***Asbestos is removed*** from work area and work site as specified by the supervisor and in the appropriate manner, ensuring the safe use of tools and according to ARCP, legislative and regulatory requirements, and codes of practice. |
| | | 4.2 | Removed ***asbestos is contained***, wrapped or otherwise sealed, and placed into removal bags or bins, sealed, labelled and, where loaded into a truck, the tray or skip is lined prior to removal of ACM from site according to regulatory requirements and company standards. |
| 5 | Carry out decontamination process. | 5.1 | Decontamination of the work area and tools is carried out according to workplace procedures, ARCP and regulatory requirements. |
| | | 5.2 | ***Decontamination of asbestos removal workers is carried out*** according to workplace procedures, ARCP and regulatory requirements. |
| | | 5.3 | Asbestos removal and decontamination equipment is removed from the area according to ARCP and regulatory requirements. |


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| | | | |
|---|---|---|---|
| 6 | Clean up work site. | 6.1 | Work area is cleared and materials disposed of according to legislation, regulations, codes of practice and job specification. |
| | | 6.2 | Plant, tools and equipment are cleaned, decontaminated, checked, maintained, removed from the work area, and stored according to manufacturer recommendations and regulatory requirements. |
| 7 | Contribute to and use documentation in line with regulatory requirements. | 7.1 | Contribution is made within limits of own responsibility to the preparation and use of ***documentation*** for regulatory notification processes according to legislative and company requirements. |
| | | 7.2 | Steps are taken within limits of own responsibility to ensure clearance inspection requirements are met and clearance certificate is gained from a competent person or licensed asbestos assessor. |
| | | 7.3 | Contribution is made within limits of own responsibility to the preparation and use of an emergency plan according to legislative and company requirements. |

# Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

- communication and appropriate level of language skills to:
  - determine requirements
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow instructions
  - read and apply:
    - documentation from a variety of sources
    - drawings and specifications
  - use language and concepts appropriate to cultural differences


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- initiative and enterprise skills to:
  - evaluate own actions and make judgements about performance and necessary improvements
  - identify and report faults in tools, equipment and materials to appropriate personnel
- planning and organising skills to:
  - set out work
  - recognise procedures, follow instructions and contribute to workplace responsibilities, such as current environmental and safety systems and the ARCP
- teamwork skills to:
  - coordinate own work with others to action tasks
  - relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- self-management skills to:
  - work independently and in teams to read and interpret relevant documentation and to prepare for non-friable asbestos removal tasks according to the recommended safe work method and ARCP
  - set up the asbestos removal area and removal site according to the safe work method and ARCP
  - check, fit and use PPE, and hand and power tools safely
  - apply general WHS procedures for construction work, including:
    - identifying, avoiding and eliminating electrical hazards
    - working safely at heights and in confined spaces
    - applying safe work practices to the use of tools appropriate to ACM removal
    - handling hazardous materials safely
    - applying safe work methods for the removal of non-friable asbestos
- follow correct cleaning, decontamination and disposal procedures

**Required knowledge**

- range of materials manufactured using asbestos, the type of asbestos used in each material, and the usual applications associated with the material, together with an understanding of:
  - health effects caused by exposure to ACM and requirement for safe handling and removal
  - health impacts on the community and requirement for safe handling and disposal
- general WHS procedures for construction work as required, including identifying and mitigating risks
- health hazards associated with friable ACM and circumstances that may change the nature of ACM from non-friable to friable, such as:
  - weathering
  - wear and tear
  - application of tools and equipment
  - accidental damage


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- licensing requirements for the use of specific equipment, such as excavators
- safe work methods for the removal of non-friable asbestos
- requirements of current legislation and standards relating to asbestos safety, and the decontamination, transport and disposal of asbestos waste
- general construction terminology
- handling requirements of differing types of asbestos materials
- hazards associated with removal processes
- work area procedures
- job safety analysis (JSA) and safe work method statements (SWMS) if required for construction
- safety data sheets (SDS)
- materials storage and hazardous waste management
- method of operation, and cleaning, use and maintenance requirements of equipment
- plans, drawings and specifications, asbestos registers and register amendments
- quality requirements relating to the removal of non-friable asbestos
- risk assessment processes and contingency planning relating to the removal of non-friable asbestos
- techniques associated with enclosing and removing asbestos
- types, characteristics, uses and limitations of plant and equipment involved in enclosing and removing asbestos
- workplace and equipment safety requirements
- purpose and application of documentation for notification; and use of ARCP and clearance inspections

# Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| Overview of assessment | This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, providing that simulated or project-based assessment techniques fully replicate workplace conditions, materials, activities, responsibilities and procedures. |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | A person should demonstrate the ability to:<br>• obtain and apply work instructions for the safe and correct removal of non-friable asbestos<br>• set up the work area and test equipment for use in the removal process of non-friable asbestos<br>• isolate the site prior to removal, complying with regulatory requirements |


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| | |
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| | • remove non-friable asbestos safely and comply with regulatory requirements<br>• contain the ACM and ensure its handling and disposal are safe and comply with requirements<br>• decontaminate self, work equipment, and the work site safely and correctly<br>• complete documentation that supports the removal process within limits of own responsibility. |
| Context of and specific resources for assessment | This unit is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.<br><br>Assessment of essential underpinning knowledge will usually be conducted in an off-site context.<br><br>Assessment is to comply with relevant regulatory or Australian standards' requirements.<br><br>Resource implications for assessment include:<br>• an induction procedure and requirement<br>• realistic tasks or simulated tasks covering the mandatory task requirements<br>• relevant specifications and work instructions<br>• tools and equipment appropriate to applying safe work practices<br>• support materials appropriate to activity<br>• workplace instructions relating to safe work practices and addressing hazards and emergencies<br>• research resources, including industry-related systems information<br>• safety data sheets.<br><br>Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support. |
| Method of assessment | Assessment methods must:<br>• satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package<br>• include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application<br>• reinforce the integration of employability skills with workplace tasks and job roles<br>• confirm that competency is verified and able to be transferred to other circumstances and environments. |


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| | |
|---|---|
| | Validity and sufficiency of evidence requires that:<br>• competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace<br>• where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge<br>• all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.<br>Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.<br>Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff. |

# Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

| | |
|---|---|
| ***Safety requirements*** will be specified from a range of sources that include: | • asbestos removal control plan<br>• company policies and procedures, including:<br>  • accessing toilets and other amenities<br>  • managing work hours to minimise risk from tiredness<br>  • working in heat and avoiding heat stress<br>• JSA<br>• legislation and regulations, including the Code of Practice for the Safe Removal of Asbestos<br>• operating manuals and specifications for materials and equipment<br>• SWMS<br>• asbestos register. |


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| | |
|---|---|
| ***Tools and equipment*** may require separate licensing for use and may include: | • high efficiency particulate air (HEPA) vacuum cleaners to comply with AS3544-1988 and AS4260-1997 as amended from time to time<br>• atomiser and water spray bottles (not pressurised)<br>• hoses and spray fittings<br>• barricades, including tape, para-webbing and fencing<br>• bars (crow and pinch)<br>• bolt cutters<br>• buckets<br>• cold chisels<br>• excavators<br>• hand drills (manual and low-speed only)<br>• fire extinguishers<br>• hammers<br>• hand tools (full kit)<br>• ladders conforming to construction regulations<br>• scaffolds<br>• scrapers<br>• shovels and spades<br>• staple guns. |
| ***Personal protective equipment*** will be specified to the requirements of the job and must include: | • protective clothing, such as:<br>  • disposable coveralls with fitted hood and cuffs<br>  • safety footwear (pull-on, not lace-up)<br>  • protective eyewear<br>  • disposable or protective gloves<br>• correct face fitting and use of respiratory protective equipment (RPE)<br>• respiratory protection required for the job, including class P1 and P2 face masks<br>• spare sets of PPE. |
| ***Materials*** may include: | • approved and branded plastic bags, including heavy-duty polythene bags (200 μm minimum thickness)<br>• duct tape<br>• foam infill spray<br>• acrylic paint to seal ACM<br>• polyvinyl alcohol (PVA) adhesive as spray to seal ACM<br>• rags or other material wipes (used once)<br>• signs<br>• 200 μm unused (not recycled) plastic sheeting or drop sheet. |
| ***Non-friable asbestos containing materials*** | • asbestos cement<br>• asbestos cement moulded guttering<br>• asbestos cement sheets |


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| may include:<br><br>Note:<br>• Non-friable asbestos is also known as bonded asbestos<br>• ACM notionally listed as non-friable may become friable due to weathering or damage | • asbestos tiles<br>• bitumastic felts and materials<br>• adhesives and glues<br>• compressed asbestos cement panels<br>• floor vinyl covering<br>• mortar<br>• resinous backing board<br>• sealant mastic<br>• tape. |
| ***Workplace procedures*** may include: | • environmental requirements, such as:<br>  • clean-up management<br>  • dust and noise management<br>  • notification to occupants, neighbours and other affected parties<br>  • sedimentation control<br>  • vibration management<br>  • waste management, including the safe disposal of ACM<br>• quality requirements, such as:<br>  • internal company quality policy and standards<br>  • manufacturer specifications<br>  • relevant regulations, including Australian standards<br>  • workplace operations and procedures. |
| ***Project sites*** may include: | • residential, commercial, industrial and public buildings<br>• plant, equipment and fire boards (e.g. friction plant and gaskets)<br>• demolition sites<br>• electricity supply authority or work site<br>• fences<br>• ships and other forms of transport<br>• sites for new building development. |
| ***Utilities*** may include: | • air conditioning<br>• electricity<br>• water services. |
| ***Requirements to isolate the removal site***: | • will reflect the nature of the site<br>• must comply with legislative requirements and the ARCP<br>• may include:<br>  • using barriers<br>  • using signage<br>  • ensuring occupants are aware of the need to stay away |


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|---|---|
| | from the removal site<br>• ensuring isolation has occurred by a licensed electrician and that this is documented. |
| ***Asbestos is removed*** in a manner that complies with legislative and company requirements, and may include: | • wet method (most preferred):<br>• saturate material by gently spraying with water and surfactant mixture (PVA in water ratio of 5:1)<br>• remove materials in sections with the minimum amount of cutting and separation and using hand tools as appropriate<br>• place removed sections in appropriate containers or packaging<br>• Note: The application of the wet asbestos removal method requires the disconnection of the building's power supply and use of a temporary power source fitted with earth leakage and residual current device (RCD)<br>• dry method (least preferred):<br>• to be used only where conditions prohibit use of the wet spray method, i.e. in the vicinity of electrical conductors<br>• fully encapsulate the work area with plastic sheeting<br>• use air respirators appropriate to the job<br>• ensure removal methods minimise the production of airborne material, for example the use of asbestos vacuum cleaners for shadow vacuuming **(Note:** domestic vacuum cleaners even fitted with a HEPA filter are unsuitable)<br>• place removed material immediately in appropriate containers and dampen with sprayed mist. |
| ***Asbestos is contained*** and sealed using a range of techniques, including: | • double-bagging<br>• using heavy-duty polythene bags (200 μm minimum thickness) labelled with an appropriate warning<br>• using drums or bins in good condition with well-fitting lids labelled with appropriate warning signage or labels.<br><br>**Note:** If too large for a bin or bag, a skip or vehicle tray may be used provided it is double-lined with heavy-duty thick plastic sheeting. When ACMs are loaded on a truck tray, the ACMs must be wetted down and then fully wrapped and sealed with a layer of 200 μm sheeting or bagged. Labelling must occur. |
| ***Decontamination of asbestos removal workers is carried out***: | • **using a range of techniques, including**:<br>• 'buddy' vacuum**i**ng<br>• decontamination unit for large non-friable removals in certain circumstances<br>• wet wiping. |
| ***Documentation*** may | • air-monitoring results, where necessary |


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| | |
|---|---|
| include: | • asbestos register<br>• notification to regulator of asbestos removal work<br>• clearance certificates<br>• asbestos removal control plans<br>• procedures for the WHS management system and the emergency plan<br>• equipment test reports<br>• health-monitoring program<br>• RPE face fits<br>• competency training certificates. |

# Unit Sector(s)

Construction


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# CPCCLDG3001A Licence to perform dogging

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor** This unit specifies the outcomes required to perform slinging techniques, including the selection and inspection of lifting gear and/or the directing of the crane operator in the movement of the load when the load is out of view of the crane/ operator for licensing purposes.

## Application of the Unit

**Application of the unit**

This unit covers the scope of work to demonstrate competency in the application of slinging techniques, selection and inspection of lifting gear and/or the directing of the crane/ operator in the movement of the load.

This unit is based upon the National Standard for Licensing Persons Performing High Risk Work.

This unit in its current form meets state and territory licensing requirements. Any alteration will result in a unit which is not acceptable to regulators for the purpose of licensing.

## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

**Prerequisite units** Nil



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# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1. Plan job. | 1.1. ***Site information*** is obtained and related to the task.<br>1.2. ***Hazard*** s and potential hazards associated with the slinging and directing of loads are identified.<br>1.3. ***Hazard control measures*** consistent with ***appropriate standards*** are identified to ensure the safety of personnel and equipment.<br>1.4. The weight, dimensions and centre of gravity of the load are identified and assessed.<br>1.5. Suitable lifting/slinging points on the load are identified.<br>1.6. Appropriate ***lifting equipment*** needs are assessed.<br>1.7. Appropriate ***communication methods*** are assessed with ***crane***/ operators and other ***appropriate personnel***.<br>1.8. Manufacturer's specifications/information is obtained for special loads where necessary. |
| 2. Select and inspect equipment. | 2.1. Lifting equipment appropriate to the task is selected.<br>2.2. Lifting equipment is inspected for serviceability.<br>2.3. Damaged or excessively worn lifting equipment is identified, labelled and rejected. |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.4. Appropriate communication methods for the crane/operator and appropriate personnel are selected.<br>2.5. Appropriate ***communication equipment*** is selected and its serviceability is checked.<br>2.6. Appropriate ***personal protective equipment*** (PPE) is selected and checked. |
| 3. Prepare site and equipment. | 3.1. Hazard prevention/control measures are applied consistent with appropriate standards to ensure the safety of personnel and equipment.<br>3.2. Appropriate slinging method is selected.<br>3.3. Lifting equipment is prepared and assembled where appropriate.<br>3.4. Load destination is prepared. |
| 4. Perform task. | 4.1. Lifting equipment is attached and secured to the lifting hook using appropriate techniques.<br>4.2. Lifting hook is positioned over the load centre of gravity.<br>4.3. Lifting equipment is attached and secured to the load in an appropriate manner.<br>4.4. Tag line is attached and secured where appropriate.<br>4.5. Test lift is conducted to ensure security of load.<br>4.6. Load is moved maintaining stability and control at all times.<br>4.7. Appropriate communication methods and ***communication signals*** are applied to safely coordinate the load movement both within sight and out-of-sight of crane operator.<br>4.8. The load is landed to ensure that it is stable and secure from movement.<br>4.9. Lifting equipment is removed or disconnected from load and prepared for next task or storage. |
| 5. Shut down job and clean up. | 5.1. Unserviceable lifting equipment inspected and rejected.<br>5.2. ***Defective equipment*** is isolated and tagged.<br>5.3. Lifting equipment is stored in accordance with procedures and appropriate standards.<br>5.4. Hazard prevention/control measures are removed where appropriate.<br>5.5. Excess materials from the work area are removed (where applicable). |


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| ELEMENT | PERFORMANCE CRITERIA |
| --- | --- |
| | 5.6. Defects are reported and recorded according to procedures and appropriate action is taken. |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

### Required skills

Required skills for this unit are:

- communication techniques in the workplace including whistles, hand signals and use of fixed channel two-way radios
- communication skills at a level sufficient to communicate with other site personnel
- calculate rated capacity of lifting equipment
- apply different methods for making temporary connections to loads using fibre and synthetic ropes
- ability to interpret rated capacity and working load limit tags
- hazard identification and control
- slinging techniques
- selection and inspection of lifting equipment
- directing crane operators in the moving of loads in a safe manner, using a slewing crane
- inspection and care of a wide range of lifting equipment to appropriate Australian Standards and/or manufacturer's specifications.

### Required knowledge

Required knowledge for this unit is:

- appropriate mathematical procedures for estimation and measurement of loads
- basic knowledge of types of cranes and their functions
- Commonwealth, state or territory OHS legislation, standards and codes of practice relevant to the full range of techniques for undertaking dogging activities
- load stability and safety factors in line with manufacturer's specifications
- types of lifting equipment and slinging techniques for use, and their limitations and performance in a wide range of conditions (including but not limited to slings, beams, accessories, clamps, work-boxes, bins and pallets)
- understanding of the hierarchy of control.


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# Evidence Guide

## EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| **Overview of assessment** | Successful assessment of this unit meets the competency requirement of the National Standard for licensing Persons Performing High Risk Work.<br><br>State/Territory OHS regulators have mandated the use of Assessment Instruments and Instructions for Assessment of this unit which have been endorsed by the national body responsible for OHS matters. |
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | A person who demonstrates competency in this unit must be able to provide evidence of the ability to:<br>• comply with Commonwealth, state or territory OHS legislation, standards relevant to safe dogging and crane operations.<br>• communicate and work safely with others in the work area.<br>• apply Hazard prevention and control measures consistent with appropriate standards.<br>• apply to move loads in conjunction with cranes including, the reading of tags, slinging, loading, directing and landing loads with a slewing mobile crane with a telescopic boom and a winch, in and out of sight of the crane/ operator, moving four loads of varying shapes, sizes and weights.<br>• use fibre and/or synthetic rope as tag lines, and connecting to loads using clove hitch, rolling hitch, bowline and single sheetbend.<br>• conduct pre and post operational checks of the lifting equipment. |
| **Context of and specific resources for assessment** | • Assessment of the safe and effective application of knowledge and skill to workplace tasks (performance) must be undertaken using the national OHS endorsed Assessment Instrument<br>• Assessment of performance must be |


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## EVIDENCE GUIDE

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| | undertaken either in the workplace or in a realistically simulated workplace setting<br>• Assessors must ensure that the assessment in the workplace is organised through a workplace supervisor to ensure that all the required equipment and materials and a suitable working area is made available to suit the assessment and the workplace<br>• Assessment must occur under standard and authorised work practices, safety requirements and environmental constraints<br>• Assessment is to comply with the requirements of any relevant Standards or operating procedures for dogging activities<br>• Applicants must have access to:<br>  • personal protective equipment (PPE) for the purpose of the performance assessment.<br>  • four different loads as prescribed in the endorsed assessment instrument<br>  • lifting and associated equipment<br>  • suitable slewing crane<br>  • communication equipment (eg. fixed channel, two-way radios) as applicable. |
| **Method of assessment** | Assessment must be conducted using the national OHS endorsed Assessment Instrument. This Instrument provides instruction on the application of the assessment.<br><br>Assessment may be in conjunction with the assessment of other units of competency.<br><br>The use of **'simulators'** in the assessment of this unit of competency is **not acceptable**.<br><br>Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.<br><br>Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. |
| **Guidance information for assessment** | Further information about endorsed Assessment Instruments may be obtained from state/territory OHS regulators. |


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# Range Statement

## RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

| | |
|---|---|
| ***Site informationmay include but not be limited to*** | • local conditions such as access and egress<br>• work method statements. |
| ***Hazards*** may include but not limited to: | • ground stability (eg. ground condition, recently filled trenches, slopes)<br>• overhead hazards (e.g. power lines, service pipes, trees, buildings, etc)<br>• insufficient lighting<br>• traffic (e.g. pedestrians, vehicles, plant)<br>• weather (e.g. wind, lightning, storms)<br>• other specific hazards (e.g. trip hazards, heights, radio interference, etc). |
| ***Hazard prevention/control measures*** | The systematic process of eliminating or reducing the risk to personnel and property through the application of controls.<br>It includes the application of the hierarchy of controls, including:<br>1. elimination.<br>2. substitution.<br>3. isolation.<br>4. engineered control measures.<br>5. safe work practices.<br>6. personal protective equipment. |
| ***Appropriate standard*** s may include: | • codes of practice<br>• legislation<br>• Australian Standards<br>• manufacturer's specifications<br>• industry standards. |


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## RANGE STATEMENT

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|---|---|
| ***Lifting Equipment*** may include but not limited to: | • fibre ropes<br>• wire ropes<br>• chain<br>• wire and synthetic slings<br>• shackles<br>• eyebolts<br>• beam clamps<br>• plate clamps<br>• spreader beams<br>• lifting beams<br>• pallet forks and cages<br>• concrete kibbles<br>• personnel boxes. |
| ***Communication Methods*** may include but are not limited to: | • written instructions<br>• signage,<br>• hand signals<br>• listening<br>• questioning to confirm understanding<br>• appropriate worksite protocol. |
| ***Cranes*** may include but not limited to: | • tower cranes (including self erecting)<br>• portal boom cranes<br>• vehicle loading cranes<br>• slewing mobile cranes<br>• non-slewing cranes<br>• derrick cranes. |
| ***Appropriate personnel*** may include but are not limited to: | • supervisors<br>• colleagues<br>• managers who are authorised to take responsibility for the workplace or operations. |
| ***Communication Equipment*** may include but not limited to: | • fixed channel two-way radios<br>• whistles<br>• bells. |
| ***Personal protective equipment*** (PPE) may include but not limited to: | • hard hat<br>• safety boots<br>• gloves<br>• high visibility clothing<br>• reflective vest<br>• relevant breathing, hearing, sight, skin and sun protection. |
| ***Load destination*** may include but | • ground |


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**RANGE STATEMENT**

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|---|---|
| not limited to: | • loading platforms<br>• suspended floors<br>• vehicles. |
| ***Communication signals*** may include but not limited to: | • stop - hand<br>• stop - whistle<br>• hoist up - hand<br>• hoist up - whistle<br>• hoist down - hand<br>• hoist down - whistle<br>• luff boom down - hand<br>• luff boom down - whistle<br>• luff boom up - hand<br>• luff boom up - whistle<br>• telescope out - hand<br>• telescope out - whistle<br>• telescope in - hand<br>• telescope in - whistle<br>• slew left - hand<br>• slew left - whistle<br>• slew right - hand<br>• slew right - whistle. |
| ***Defective Equipment*** may include but not limited to: | • excessive wear<br>• damage<br>• stretched<br>• broken wires<br>• cut/damaged fibres. |

# Unit Sector(s)

**Unit sector** Construction

# Co-requisite units

**Co-requisite units** Nil


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**Co-requisite units** Nil

# Functional area

## Functional area


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# CPCCLRG3001A Licence to perform rigging basic level

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit specifies the outcomes required to perform basic rigging work associated with movement of plant and equipment, steel erections, hoists (including mast climbing hoists), placement of pre-cast concrete, safety nets and static lines, perimeter safety screens and shutters; and cantilever crane loading platforms for licensing purposes.

## Application of the Unit

**Application of the unit**

This unit requires the applicant to be able plan the work, select and inspect equipment, set up task, erect structures and plant and dismantle structures and plant.

This unit is based upon the National Standard for Licensing Persons Performing High Risk Work.

This unit in its current form meets state and territory licensing requirements. Any alteration will result in a unit which is not acceptable to regulators for the purpose of licensing.

This unit has a pre-requisite requirement. This requirement may be met by either the successful completion of the unit *CPCCLDG3001A Licence to perform dogging* or holding a valid licence for dogging.

## Licensing/Regulatory Information

Refer to Unit Descriptor



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# Pre-Requisites

**Prerequisite units**

| | |
|---|---|
| CPCCLDG3001A | Licence to perform dogging |

# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1. Plan job. | 1.1. Task to be undertaken is assessed.<br>1.2. Potential workplace ***hazards*** are identified.<br>1.3. ***Hazard control measures*** are identified consistent with ***appropriate standards*** to ensure the safety of personnel and equipment.<br>1.4. Site information is obtained.<br>1.5. All ***forces and loads*** associated with erecting and dismantling ***structures*** and ***associated plant*** are considered in consultation with ***appropriate personnel***.<br>1.6. ***Rigging equipment*** and ***associated equipment*** are identified in consultation with appropriate personnel according to ***procedures*** and site information. |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.7. *Safety equipment* is identified. |
| | 1.8. Appropriate ***communication methods*** are identified with appropriate personnel. |
| 2. Select and inspect equipment. | 2.1. Rigging equipment and associated equipment are selected and inspected according to procedures and the appropriate standard. |
| | 2.2. Safety equipment is selected and inspected according to procedures. |
| | 2.3. All defective rigging equipment, associated equipment and safety equipment is isolated, reported and recorded according to procedures. |
| | 2.4. ***Communication equipment*** is selected and inspected for serviceability (where applicable. |
| 3. Set up task. | 3.1. Appropriate ***hazard prevention***/***control measures*** are applied to the work area according to procedures. |
| | 3.2. ***Ground suitability*** is inspected and checked (where appropriate). |
| | 3.3. Site information is reviewed, interpreted and communicated to appropriate personnel and ***appropriate personnel***. |
| | 3.4. All forces and loads associated with erecting and dismantling structures and associated plant are determined in consultation with appropriate personnel. |
| | 3.5. Safety equipment is fitted and worn correctly (where appropriate). |
| | 3.6. Rigging equipment and associated plant are positioned for work application and stability according to procedures. |
| | 3.7. Methods of applying ***temporary connections*** using fibre rope are applied according to procedures and the appropriate standard. |
| 4. Erect structures and plant. | 4.1. Structures and associated plant are erected according to procedures and site information. |
| | 4.2. Stability of structures and associated plant is maintained during erection according to procedures. |
| | 4.3. Work is conducted safely at heights including safe and effective use of safety equipment. |
| | 4.4. Appropriate communication methods and communication equipment, are used to co-ordinate the tasks. |
| | 4.5. Associated plant and rigging equipment is used |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | according to procedures and the appropriate standard.<br>4.6. Temporary guys, ties, propping and shoring, including ***flexible steel wire rope***, and tubing, are connected where required.<br>4.7. Associated equipment is used in a safe and appropriate manner.<br>4.8. The completed task is inspected according to the appropriate standard.<br>4.9. Excess materials are removed from the work area (where applicable). |
| 5. Dismantle structures and plant. | 5.1. Structures and associated plant are dismantled according to procedures and the appropriate standard.<br>5.2. Work is conducted safely at heights including safe and effective use of safety equipment.<br>5.3. Stability of structures and associated plant is maintained during dismantling according to procedures.<br>5.4. Rigging equipment, associated equipment, safety equipment and associated plant are inspected for damage and defects.<br>5.5. All defective rigging equipment, associated equipment, associated plant and safety equipment are isolated reported and recorded according to procedures.<br>5.6. Rigging equipment and associated equipment are stored. according to procedures and the appropriate standard.<br>5.7. Hazard prevention/control measures are removed (where appropriate). |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

### Required skills


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## REQUIRED SKILLS AND KNOWLEDGE

Required skills for this unit are:

- ability to calculate Safe Working Load (SWL) and Working Load Limit (WLL)
- ability to erect and dismantle, level, plumb and stabilise associated plant and structures
- ability to work safely at heights including the correct application of safety equipment.
- accurate interpretation of basic structural charts and structural plans (site information)
- applying methods for making temporary connections of ropes using fibre and synthetic types
- apply methods of splicing and whipping fibre and synthetic ropes
- correct application and use of all rigging and associated equipment
- risk assessment and hazard control strategies
- interpersonal and communication skills at a level sufficient to site/workplace requirements. This includes the relevant communication methods and equipment.
- verify problems and equipment faults and demonstrate appropriate response.

### Required knowledge

Required knowledge for this unit is:

- appropriate mathematical procedures for estimation and measurement of loads
- ability to interpret manufacturer's specifications for all plant and equipment use in rigging operations
- knowledge of principles relating to all plant, equipment and structural stability
- knowledge of the types and functions of rigging, safety and associated equipment including an understanding of their limitations.
- organisational and workplace standards, requirements, policies and procedures for rigging
- understanding of the hierarchy of hazard identification and control
- relevant Commonwealth, state or territory and local government OHS legislation, standards and codes of practice for undertaking rigging activities
- understanding of inspection and maintenance requirements of a wide range of appropriate plant and equipment in line with Australian Standards or manufacturer's specifications
- estimation of ground bearing pressures of the full range of soil types and associated ground conditions for setting up plant and equipment.


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# Evidence Guide

## EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

**Overview of assessment**

Successful assessment of this unit meets the competency requirement of the National Standard for licensing Persons Performing High Risk Work.

State/Territory OHS regulators have mandated the use of Assessment Instruments and Instructions for Assessment endorsed by the national body responsible for OHS matters for the assessment of this unit.

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

A person who demonstrates competency in this unit must be able to provide evidence of the ability to:

- comply with OHS licensing legislation.
- effectively communicate and work safely with others in the work area.
- effectively conduct risk assessment and management procedures.
- effectively complete the following tasks:-
  - inspection of all plant and equipment, and
  - installation of a fall arrest system (Static line), and
  - use of a safety harness / fall arrest system, and
  - installation of crane loading platforms and
  - installation of a safety net, and
  - installation of a shutter and safety screen, and
  - demonstrated ability to work safely at heights, and
  - erection of structural steel, and
  - erection of precast panel, and
  - set up and operation of a winch for load movement, and
  - installation of a materials hoist, or
  - installation of a mast climber.
- effectively demonstrate the following knots,


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## EVIDENCE GUIDE

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| | bends and hitches:-<br>• Sheet bend,<br>• Becket hitch,<br>• Running bowline,<br>• Double bowline.<br>• effectively demonstrate the following splices and whippings:-<br>• Eye splice,<br>• Back splice,<br>• Short splice,<br>• Sail makers whipping,<br>• Common whipping,<br>• West countryman's |
| **Context of and specific resources for assessment** | Assessment of the safe and effective application of knowledge and skill to workplace tasks (performance) must be undertaken using the National OHS endorsed Assessment Instrument.<br><br>Assessment of performance must be undertaken either in the workplace or in a realistically simulated workplace setting.<br><br>Assessors must ensure that the assessment in the workplace is organised to ensure that all the required equipment and materials and a suitable working area is made available to suit the assessment and the workplace.<br><br>Assessment must occur under standard and authorised work practices, safety requirements and environmental constraints.<br><br>Assessment is to comply with the requirements of any relevant Standards or operating procedures for basic rigging.<br><br>Applicants must have access to:<br>• personal protective equipment (PPE) for the purpose of the Performance Assessment.<br>• appropriate safety equipment in safe condition<br>• appropriate rigging equipment, associated equipment associated plant in safe condition as described in the endorsed assessment instrument<br>• communication equipment (e.g. two-way |


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**EVIDENCE GUIDE**

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| | radios) where applicable<br>• appropriate materials as required for safe erection of structures<br>• appropriate materials for conducting fibre rope slicing, whipping, knots, bends and hitches. |
| **Method of assessment** | Assessment must be conducted using the national OHS endorsed Assessment Instruments. These Instruments provide advice on their application.<br><br>The use of **'simulators'** in the assessment of this unit of competency is **not acceptable**.<br><br>Assessment may be in conjunction with the assessment of other units of competency.<br><br>Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.<br><br>Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. |
| **Guidance information for assessment** | Further information about endorsed Assessment Instruments may be obtained from state/territory OHS regulators. |

# Range Statement

**RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

| | |
|---|---|
| ***Hazards*** may include but are not limited to: | • ground stability (e.g. ground condition, recently filled trenches, slopes)<br>• overhead hazards (e.g. power lines, service pipes) (**NB**: minimum clearance distance from powerlines or electrical equipment as determined by relevant state authority or |


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## RANGE STATEMENT

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| | electrical supply authority.)<br>• traffic (e.g. pedestrians, vehicles, other plant)<br>• insufficient lighting<br>• environmental conditions (e.g. wind, lightning, storms)<br>• other specific hazards (e.g. dangerous materials). |
| ***Hazard control measures***: | Refers to the systematic process of eliminating or reducing the risk to personnel and property through the application of controls.<br>It includes the application of the hierarchy of control, the six-step preference of control measures to manage and control risk:<br>• elimination<br>• substitution<br>• isolation<br>• engineering control measures<br>• using safe work practices<br>• personal protective equipment. |
| ***Appropriate standards*** may include: | • codes of practice<br>• legislation<br>• Australian Standards<br>• manufacturer's specifications<br>• industry standards (where applicable). |
| ***Site Information*** may include, but not limited to: | • local conditions such as access and egress,<br>• work method statements,<br>• site specific job safety analyses and other site specific documentation as required.<br>• task plans / Schedules and structural plans. |
| ***Forces and Loads*** may include, but not limited to: | • dead loads<br>• live loads<br>• static load<br>• dynamic loads<br>• wind loads. |
| ***Structures*** may include but are not limited to: | • structural steel<br>• precast panels. |
| ***Associated plant*** may include but not limited to: | • static lines<br>• safety nets<br>• hoists |


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## RANGE STATEMENT

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| | • mast climbers<br>• loading platforms. |
| ***Appropriate personnel*** may include: | • engineers<br>• supervisors<br>• colleagues<br>• managers who are authorised to take responsibility for the workplace or operations. |
| ***Rigging Equipment*** may include but is not limited to: | • scaffolds<br>• elevated work platforms<br>• personnel box<br>• cantilevered crane loading platforms<br>• mast climbers.<br>• safety screens and shutters<br>• cranes including but not limited to:<br>  • non-slewing cranes<br>  • mobile slewing cranes<br>  • vehicle loading cranes<br>  • tower cranes<br>  • self-erecting tower cranes<br>  • portal boom cranes<br>  • derrick cranes<br>  • bridge and gantry cranes. |
| ***Associated equipment*** may include but is not limited to: | • all types of power and manually operated lifting gear<br>• fibre ropes<br>• flexible steel wire rope (FSWR)<br>• chains<br>• wire and synthetic slings<br>• shackles<br>• terminations<br>• wedge sockets<br>• eye bolts<br>• beam clamps<br>• plate clamps<br>• rope grips<br>• turnbuckles<br>• rigging screws<br>• chain blocks<br>• lever blocks<br>• lever-action winches |


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## RANGE STATEMENT

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| | • sheaves<br>• spreader bars<br>• lifting beams<br>• jacks<br>• levers<br>• skates<br>• wedges<br>• rollers<br>• girder trolley |
| ***Procedures*** may include but is not limited to: | • manufacturer's guidelines (instructions, specifications or checklists)<br>• industry operating procedures, relevant codes of practice<br>• workplace procedures (work instructions, operating procedures, checklists). |
| ***Safety Equipment*** may include but not limited to: | • safety harness<br>• energy absorber<br>• lanyard<br>• inertia reel<br>• static safety lines<br>• safety nets. |
| ***Communication Methods*** may include but is not limited to: | • verbal and non-verbal language<br>• written instructions<br>• signage<br>• hand signals<br>• listening,<br>• questioning to confirm understanding, and appropriate worksite protocol.<br><br>**NB**: Mobile phones are not to be used for signalling purposes during the rigging process. |
| ***Communication equipment*** may include but is not limited to: | • fixed channel two-way radios |
| ***Hazard prevention/control measures*** may include but is not limited to: | • safety tags on electrical switches/isolators<br>• powerlines are insulated<br>• safety observer used inside exclusion zone<br>• power disconnected<br>• traffic barricades and control<br>• pedestrian barricades<br>• trench covers |


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**RANGE STATEMENT**

| | |
|---|---|
| | • movement of obstructions<br>• personal protective equipment<br>• adequate illumination<br>• safety shutters and screens. |
| ***Ground suitability*** may include but is not limited to: | • rough uneven ground<br>• backfilled ground<br>• soft soils<br>• hard compacted soil<br>• rock<br>• bitumen<br>• concrete<br>• suspended concrete floors<br>• building roofs<br>• landings<br>• ground bearing pressure. |
| ***Appropriate personnel*** may include but not limited to | • other riggers<br>• doggers<br>• crane operators. |
| ***Temporary connections*** may include but not limited to: | • knots<br>• bends<br>• hitches<br>• spicing<br>• whipping. |
| ***Flexible Steel Wire Rope*** (***FSWR***) includes: | • identification, uses and connections.<br>May include termination for:<br>• static lines,<br>• guys,<br>• purchase systems,<br>• lashing,<br>• cranes,<br>• hoist and winch ropes. |

# Unit Sector(s)

**Unit sector** Construction


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# Co-requisite units

**Co-requisite units** Nil

# Functional area

**Functional area**


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# CPCCLRG3002A Licence to perform rigging intermediate level

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit specifies the outcomes required to perform rigging work at the intermediate level, which includes all the outcomes for rigging work at the basic level, and also includes rigging of cranes, rigging of conveyors, rigging of dredges and excavators, rigging associated with tilt slabs, rigging associated with demolition work, and dual lifts for licensing purposes.

## Application of the Unit

**Application of the unit**

This unit requires the applicant to be able plan the work, select and inspect equipment, set up task, erect structures and plant and dismantle structures and plant.

This unit is based upon the National Standard for Licensing Persons Performing High Risk Work.

This unit in its current form meets state and territory licensing requirements. Any alteration will result in a unit which is not acceptable to regulators for the purpose of licensing.

This unit has a pre-requisite requirement. This requirement may be met by either the successful completion of the unit *CPCCLRG3001A Licence to perform rigging basic level* or holding a valid licence for basic rigging.

## Licensing/Regulatory Information

Refer to Unit Descriptor



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# Pre-Requisites

**Prerequisite units**

| | |
|---|---|
| CPCCLRG3001A | Licence to perform rigging basic level |

# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1. Plan job. | 1.1. Task to be undertaken is assessed<br>1.2. Potential workplace ***hazards*** are identified<br>1.3. ***Hazard control measures*** are identified consistent with ***appropriate standards*** to ensure the safety of personnel and equipment<br>1.4. Site information is obtained<br>1.5. All ***forces and loads*** associated with erecting and dismantling ***structures*** and ***associated plant*** are considered in consultation with ***appropriate personnel***.<br>1.6. ***Rigging equipment*** and ***associated equipment*** are identified in consultation with appropriate personnel |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | according to ***procedures*** and site information. |
| | 1.7. *Safety equipment* is identified. |
| | 1.8. Appropriate ***communication methods*** are identified with appropriate personnel. |
| 2. Select and inspect equipment. | 2.1. Rigging equipment and associated equipment are selected and inspected according to procedures and the appropriate standard. |
| | 2.2. Safety equipment is selected and inspected according to procedures. |
| | 2.3. All defective rigging equipment, associated equipment and safety equipment is isolated, reported and recorded according to procedures. |
| | 2.4. ***Communication equipment*** is selected and inspected for serviceability (where applicable) |
| 3. Set up tasks. | 3.1. Appropriate ***hazard prevention***/***control measures*** are applied to the work area according to procedures. |
| | 3.2. ***Ground suitability*** is inspected and checked (where appropriate). |
| | 3.3. Site information is reviewed, interpreted and communicated to appropriate personnel and ***appropriate personnel***. |
| | 3.4. All forces and loads associated with erecting and dismantling structures and associated plant are determined in consultation with appropriate personnel. |
| | 3.5. Safety equipment is fitted and worn correctly (where appropriate). |
| | 3.6. Rigging equipment and associated plant are positioned for work application and stability according to procedures. |
| 4. Erect structures and plant. | 4.1. Structures and associated plant is erected according to procedures and site information. |
| | 4.2. Stability of structures and associated plant is maintained during erection according to procedures. |
| | 4.3. Work is conducted safely at heights including safe and effective use of safety equipment. |
| | 4.4. Appropriate communication methods and communication equipment, are used to co-ordinate the tasks. |
| | 4.5. Temporary guys, ties, propping and shoring, including ***flexible steel wire rope***, and tubing, are connected where required. |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 4.6. Associated plant and rigging equipment is used according to procedures and the appropriate standard.<br>4.7. Associated equipment is used in a safe and appropriate manner.<br>4.8. The completed task is inspected according to the appropriate standard.<br>4.9. Excess materials are removed from the work area (where applicable) |
| 5. Dismantle structures and plant. | 5.1. Structures and associated plant are dismantled according to procedures and the appropriate standard.<br>5.2. Work is conducted safely at heights including safe and effective use of safety equipment.<br>5.3. Stability of structures and associated plant is maintained during dismantling according to procedures.<br>5.4. Rigging equipment, associated equipment, safety equipment and associated plant are inspected for damage and defects<br>5.5. All defective rigging equipment, associated equipment, associated plant and safety equipment are isolated reported and recorded according to procedures.<br>5.6. Rigging equipment and associated equipment are stored according to procedures and the appropriate standard.<br>5.7. Hazard prevention/control measures are removed (where appropriate) |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

### Required skills

Required skills for this unit are:

- ability to calculate Safe Working Load (SWL) and Working Load Limit (WLL)


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### REQUIRED SKILLS AND KNOWLEDGE

- ability to erect and dismantle, level, plumb and stabilise associated plant and structures
- ability to work safely at heights including the correct application of safety equipment.
- accurate interpretation of structural charts and structural plans (site information)
- correct application and use of all rigging and associated equipment
- risk assessment and hazard control strategies
- interpersonal and communication skills at a level sufficient to site/workplace requirements. This includes the relevant communication methods and equipment.
- verify problems and equipment faults and demonstrate appropriate response.

### Required knowledge

Required knowledge for this unit is:

- appropriate mathematical procedures for estimation and measurement of loads
- ability to interpret manufacturer's specifications for all plant and equipment use in rigging operations
- knowledge of principles relating to all plant, equipment and structural stability
- knowledge of the types and functions of rigging, safety and associated equipment including an understanding of their limitations
- organisational and workplace standards, requirements, policies and procedures for rigging
- understanding of the hierarchy of hazard identification and control
- relevant Commonwealth, state or territory and local government OHS legislation, standards and codes of practice for undertaking rigging activities
- understanding of inspection and maintenance requirements of a wide range of appropriate plant and equipment in line with Australian Standards or manufacturer's specifications
- estimation of ground bearing pressures of the full range of soil types and associated ground conditions for setting up plant and equipment.

# Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| **Overview of assessment** | Successful assessment of this unit meets the competency requirement of the National Standard |


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## EVIDENCE GUIDE

| | |
|---|---|
| | for licensing Persons Performing High Risk Work.<br><br>State/Territory OHS regulators have mandated the use of Assessment Instruments and Instructions for Assessment for this unit which have been endorsed by the national body responsible for OHS matters. |
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | A person who demonstrates competency in this unit must be able to provide evidence of the ability to:<br>• comply with OHS licensing legislation.<br>• effectively communicate and work safely with others in the work area.<br>• effectively conduct risk assessment and management procedures.<br>• effectively complete the following tasks:<br>  • adding and removing a tower crane section, or<br>  • adding and removing a crane lattice boom section, or<br>  • erecting a non guyed tower (e.g. light tower, and<br>  • perform a multiple crane lift, or<br>  • a multiple winch lift, or<br>  • a combination of a crane and winch lift, and<br>  • lifting and installing a series of tilt-up panels, or<br>  • lifting and installing a series of scenery panels (i.e. entertainment industry), and<br>  • demolish/remove a series of tilt-up panel structures, or<br>  • demolish/remove a series of scenery panel structures, and<br>  • demolishing a concrete encased structural steel column and beam.<br>• **NB**: All specifications for these performance tasks are detailed in the endorsed assessment instrument.<br>• effectively conduct pre and post operational checks of intermediate rigging equipment. |
| **Context of and specific resources for assessment** | Assessment of the safe and effective application of knowledge and skill to workplace tasks (performance) must be undertaken using the |


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## EVIDENCE GUIDE

| | |
|---|---|
| | endorsed Assessment Instrument.<br><br>Assessment of performance must be undertaken either in the workplace or in a realistically simulated workplace setting.<br><br>Assessors must ensure that the assessment in the workplace is organised to ensure that all the required equipment and materials and a suitable working area is made available to suit the assessment and the workplace.<br><br>Assessment must occur under standard and authorised work practices, safety requirements and environmental constraints.<br><br>Assessment is to comply with relevant appropriate standard requirements.<br><br>Applicants must have access to:<br>• personal protective equipment (PPE) for the purpose of the Performance Assessment<br>• appropriate safety equipment is safe condition<br>• appropriate rigging equipment, associated equipment associated plant in safe condition as described in the endorsed assessment instrument<br>• communication equipment (e.g. radios) where applicable<br>• appropriate materials as required for safe erection of structures. |
| **Method of assessment** | Assessment must be conducted using the endorsed Assessment Instruments. These Instruments provide advice on their application.<br><br>The use of **'simulators'** in the assessment of this unit of competency is **not acceptable**.<br><br>Assessment may be in conjunction with the assessment of other units of competency.<br><br>Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.<br><br>Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. |


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### EVIDENCE GUIDE

| | |
|---|---|
| **Guidance information for assessment** | Further information about endorsed Assessment Instruments may be obtained from state/territory OHS regulators. |

# Range Statement

### RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

| | |
|---|---|
| ***Hazards*** may include but not limited to: | • ground stability (e.g. ground condition, recently filled trenches, slopes)<br>• overhead hazards (e.g. power lines, service pipes) (**NB**: Minimum clearance distance from powerlines or electrical equipment as determined by relevant state authority or electrical supply authority)<br>• traffic (e.g. pedestrians, vehicles, other plant)<br>• insufficient lighting<br>• environmental conditions (e.g. wind, lightning, storms)<br>• other specific hazards (e.g. dangerous materials). |
| ***Hazard control measures***: | Refers to the systematic process of eliminating or reducing the risk to personnel and property through the application of controls.<br><br>It includes the application of the hierarchy of control, the six-step preference of control measures to manage and control risk:<br><br>• elimination<br>• substitution<br>• isolation<br>• engineering control measures<br>• using safe work practices<br>• personal protective equipment. |


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## RANGE STATEMENT

| | |
|---|---|
| ***Appropriate standards*** may include but are not limited to: | • codes of practice<br>• legislation<br>• Australian Standards<br>• manufacturer's specifications<br>• industry standards (where applicable). |
| ***Site Information*** may include but is not limited to: | • local conditions such as access and egress<br>• work method statements<br>• site-specific job safety analyses and other site specific documentation as required<br>• task plans /schedules and structural plans. |
| ***Forces and Loads*** may include but are not limited to: | • dead loads<br>• live loads<br>• static load<br>• dynamic loads<br>• wind loads. |
| ***Structures*** may include but not limited to: | • concrete tilt-up panels<br>• scenery panels (used in entertainment)<br>• non guyed light towers. |
| ***Associated plant*** may include but is not limited to: | • all types of cranes<br>• conveyors<br>• dredges<br>• excavators. |
| ***Appropriate personnel*** may include but not limited to: | • supervisors<br>• engineers<br>• colleagues<br>• managers who are authorised to take responsibility for the workplace or operations. |
| ***Rigging Equipment*** may include but is not limited to: | • scaffolds<br>• elevated work platforms<br>• stages<br>• personnel box<br>• cantilevered crane loading platforms,<br>• mast climbers<br>• safety screens and shutters<br>• cranes including but not limited to:<br>  • non-slewing cranes<br>  • mobile slewing cranes<br>  • vehicle loading cranes<br>  • tower cranes |


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## RANGE STATEMENT

| | |
|---|---|
| | • self-erecting tower cranes<br>• portal boom cranes<br>• derrick cranes<br>• bridge and gantry cranes. |
| ***Associated equipment*** may include but is not limited to: | • all associated equipment at the basic rigging level, and<br>• lifting clutches (swift lifts)<br>• chain motors. |
| ***Procedures*** may include but are not limited to: | • manufacturer's guidelines (instructions, specifications or checklists)<br>• industry operating procedures, relevant codes of practice<br>• workplace procedures (work instructions, operating procedures, checklists). |
| ***Safety Equipment*** may include but not limited to: | • safety harness<br>• energy absorber<br>• lanyard<br>• inertia reel<br>• safety nets<br>• static lines. |
| ***Communication Methods*** may include but not limited to: | • verbal and non-verbal language<br>• written instructions<br>• signage<br>• hand signals<br>• listening,<br>• questioning to confirm understanding, and appropriate worksite protocol.<br>**NB**: Mobile phones are not to be used for signalling purposes during the rigging process. |
| ***Communication equipment*** may include but is not limited to: | • fixed channel two-way radios |
| ***Hazard prevention/control measures*** may include but is not limited to: | • safety tags on electrical switches/isolators<br>• powerlines are insulated<br>• safety observer used inside exclusion zone<br>• power disconnected<br>• traffic barricades and control<br>• pedestrian barricades<br>• trench covers<br>• movement of obstructions |


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**RANGE STATEMENT**

| | |
|---|---|
| | • personal protective equipment<br>• adequate illumination. |
| ***Ground suitability*** may include but is not limited to: | • rough uneven ground<br>• backfilled ground<br>• soft soils<br>• hard compacted soil<br>• rock<br>• bitumen<br>• concrete<br>• suspended concrete floors<br>• building roofs<br>• landings<br>• ground bearing pressure. |
| ***Appropriate personnel*** may include but not limited to: | • other riggers<br>• doggers<br>• crane operators. |
| ***Flexible Steel Wire Rope*** (***FSWR***) includes: | • identification, uses and connections.<br>May include termination for:<br>• static lines<br>• guys<br>• purchase systems<br>• lashing<br>• cranes<br>• hoist and winch ropes. |

# Unit Sector(s)

**Unit sector** Construction

# Co-requisite units

**Co-requisite units** Nil


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# Functional area

## Functional area


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# CPCCLRG4001A Licence to perform rigging advanced level

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit specifies the outcomes required to perform rigging work at the advanced level, which includes all the outcomes for rigging work at the basic and intermediate levels, and also includes rigging of gin poles and shear legs, flying foxes and cable ways, guyed derricks and structures, and suspended scaffolds and fabricated hung scaffolds for licensing purposes.

## Application of the Unit

**Application of the unit**

This unit requires the applicant to be able plan the work, select and inspect equipment, set up task, erect structures and plant and dismantle structures and plant.

This unit is based upon the National Standard for Licensing Persons Performing High Risk Work.

This unit in its current form meets state and territory licensing requirements. Any alteration will result in a unit which is not acceptable to regulators for the purpose of licensing.

This unit has a pre-requisite requirement. This requirement may be met by either the successful completion of the unit *CPCCLRG3002A Licence to perform rigging intermediate level* or holding a valid licence for intermediate rigging.

## Licensing/Regulatory Information

Refer to Unit Descriptor



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# Pre-Requisites

**Prerequisite units**

| | |
|---|---|
| CPCCLRG3002A | Licence to perform rigging intermediate level |

# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1. Plan job. | 1.1. Task to be undertaken is assessed.<br>1.2. Potential workplace ***hazards*** are identified.<br>1.3. ***Hazard control measures*** are identified consistent with ***appropriate standards*** to ensure the safety of personnel and equipment.<br>1.4. Site information is obtained.<br>1.5. All ***forces and loads*** associated with erecting and dismantling ***associated plant*** are considered in consultation with ***appropriate personnel***.<br>1.6. ***Rigging equipment*** and ***associated equipment*** are identified in consultation with appropriate personnel according to ***procedures*** and site information. |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.7. ***Safety equipment*** is identified.<br>1.8. Appropriate communication methods are identified with appropriate personnel. |
| 2. Select and inspect equipment. | 2.1. Rigging equipment and associated equipment are selected and inspected according to procedures and the appropriate standard.<br>2.2. Safety equipment is selected and inspected according to procedures.<br>2.3. All defective rigging equipment, associated equipment and safety equipment is isolated, reported and recorded according to procedures.<br>2.4. ***Communication equipment*** is selected and inspected for serviceability (where applicable) |
| 3. Prepare site and equipment. | 3.1. Appropriate ***hazard prevention***/***control measures*** are applied to the work area according to procedures.<br>3.2. ***Ground suitability*** is inspected and checked (where appropriate).<br>3.3. Site information is reviewed interpreted and communicated to appropriate personnel and appropriate personnel.<br>3.4. All forces and loads associated with erecting and dismantling associated plant are determined in consultation with appropriate personnel.<br>3.5. Safety equipment is fitted and worn correctly (where appropriate).<br>3.6. Rigging equipment and associated plant are positioned for work application and stability according to procedures.<br>3.7. Methods of applying ***temporary connections*** using fibre rope are applied according to procedures and the appropriate standard. |
| 4. Erect structures and plant. | 4.1. Associated plant is erected according to procedures and site information.<br>4.2. Stability of associated plant is maintained during erection according to procedures.<br>4.3. Work is conducted safely at heights including safe and effective use of safety equipment.<br>4.4. Appropriate communication methods and communication equipment, are used to co-ordinate the tasks.<br>4.5. Temporary guys, ties, propping and shoring, including ***flexible steel wire rope***, and tubing, are |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | connected where required.<br>4.6. Associated plant and rigging equipment is used according to procedures and the appropriate standard.<br>4.7. Associated equipment is used in a safe and appropriate manner.<br>4.8. The completed task is inspected according to the appropriate standard.<br>4.9. Excess materials are removed from the work area (where applicable) |
| 5. Dismantle structures and plant. | 5.1. Associated plant is dismantled according to procedures and the appropriate standard.<br>5.2. Work is conducted safely at heights including safe and effective use of safety equipment.<br>5.3. Stability of associated plant is maintained during dismantling according to procedures.<br>5.4. Rigging equipment, associated equipment, safety equipment and associated plant are inspected for damage and defects<br>5.5. All defective rigging equipment, associated equipment, associated plant and safety equipment are isolated reported and recorded according to procedures.<br>5.6. Rigging equipment and associated equipment are stored according to procedures and the appropriate standard.<br>5.7. Hazard prevention/control measures are removed (where appropriate) |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

### Required skills

Required skills for this unit are:

- ability to calculate Safe Working Load (SWL) and Working Load Limit (WLL)
- ability to erect and dismantle, level, plumb and stabilise associated plant


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### REQUIRED SKILLS AND KNOWLEDGE

- ability to work safely at heights including the correct application of safety equipment.
- accurate interpretation of structural charts and structural plans (Site information)
- applying methods for making temporary connections of ropes using fibre and synthetic types
- correct application and use of all rigging and associated equipment
- risk assessment and hazard control strategies
- interpersonal and communication skills at a level sufficient to site/workplace requirements. This includes the relevant communication methods and equipment.
- verify problems and equipment faults and demonstrate appropriate response.

### Required knowledge

Required knowledge for this unit is:

- appropriate mathematical procedures for estimation and measurement of loads
- ability to interpret manufacturer's specifications for all plant and equipment use in rigging operations
- knowledge of principles relating to all plant, equipment and structural stability
- knowledge of the types and functions of rigging, safety and associated equipment including an understanding of their limitations
- organisational and workplace standards, requirements, policies and procedures for rigging
- understanding of the hierarchy of hazard identification and control
- relevant Commonwealth, state or territory and local government OHS legislation, standards and codes of practice for undertaking rigging activities
- understanding of inspection and maintenance requirements of a wide range of appropriate plant and equipment in line with Australian Standards or manufacturer's specifications
- estimation of ground bearing pressures of the full range of soil types and associated ground conditions for setting up plant and equipment.

# Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| **Overview of assessment** | Successful assessment of this unit meets the competency requirement of the National Standard |


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## EVIDENCE GUIDE

| | |
|---|---|
| | for licensing Persons Performing High Risk Work.<br><br>State/Territory OHS regulators have mandated the use of Assessment Instruments and Instructions for Assessment for this unit which have been endorsed by the national body responsible for OHS matters |
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | A person who demonstrates competency in this unit must be able to provide evidence of the ability to:<br>• comply with OHS licensing legislation.<br>• effectively communicate and work safely with others in the work area.<br>• effectively conduct risk assessment and management procedures.<br>• effectively complete the following tasks:<br>  • rig a span rope, or<br>  • rig a flying fox, and<br>  • install a swinging stage, or<br>  • install a bosuns chair, and<br>  • set up a gin pole and conduct a lift with a powered winch, and<br>  • erect and dismantle a hung or suspended scaffold<br><br>NB: All specifications for these performance tasks are detailed in the endorsed assessment instrument.<br>• effectively demonstrate the following knots, bends and hitches:<br>  • Alpine hitch<br>  • Bosun chair hitch<br>  • Prusik hitch<br>  • Figure eight<br>• effectively conduct pre and post operational checks of advanced rigging equipment. |
| **Context of and specific resources for assessment** | Assessment of the safe and effective application of knowledge and skill to workplace tasks (performance) must be undertaken using the endorsed Assessment Instrument.<br><br>Assessment of performance must be undertaken either in the workplace or in a realistically |


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## EVIDENCE GUIDE

| | |
|---|---|
| | simulated workplace setting.<br><br>Assessors must ensure that the assessment in the workplace is organised to ensure that all the required equipment and materials and a suitable working area is made available to suit the assessment and the workplace.<br><br>Assessment must occur under standard and authorised work practices, safety requirements and environmental constraints.<br><br>Assessment is to comply with relevant appropriate standard requirements.<br><br>Applicants must have access to:<br>• personal protective equipment (PPE) for the purpose of the Performance Assessment<br>• appropriate safety equipment is safe condition<br>• Appropriate rigging equipment, associated equipment associated plant in safe condition as described in the endorsed assessment instrument<br>• communication equipment (e.g. radios) where applicable<br>• appropriate materials as required for safe erection and dismantling of performance tasks<br>• appropriate materials for conducting fibre rope knots, bends and hitches. |
| **Method of assessment** | Assessment must be conducted using the endorsed Assessment Instruments. These Instruments provide advice on their application.<br><br>The use of **'simulators'** in the assessment of this unit of competency is **not acceptable**.<br><br>Assessment may be in conjunction with the assessment of other units of competency.<br><br>Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.<br><br>Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. |
| **Guidance information for** | Further information about endorsed Assessment |


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**EVIDENCE GUIDE**

| | |
|---|---|
| **assessment** | Instruments may be obtained from state/territory OHS regulators. |

# Range Statement

**RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

| | |
|---|---|
| ***Hazards*** may include but are not limited to: | • ground stability (e.g. ground condition, recently filled trenches, slopes)<br>• overhead hazards (e.g. power lines, service pipes) (**NB**: Minimum clearance distance from powerlines or electrical equipment as determined by relevant state authority or electrical supply authority)<br>• traffic (e.g. pedestrians, vehicles, other plant)<br>• insufficient lighting<br>• environmental conditions (e.g. wind, lightning, storms)<br>• other specific hazards (e.g. dangerous materials). |
| ***Hazard control measures***: | Refers to the systematic process of eliminating or reducing the risk to personnel and property through the application of controls.<br><br>It includes the application of the hierarchy of control, the six-step preference of control measures to manage and control risk:<br>• elimination<br>• substitution<br>• isolation<br>• engineering control measures<br>• using safe work practices<br>• personal protective equipment. |
| ***Appropriate standards*** may | • codes of practice |


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## RANGE STATEMENT

| | |
|---|---|
| include: | • legislation<br>• Australian Standards<br>• manufacturer's specifications<br>• industry standards (where applicable). |
| ***Site information*** may include but is not limited to: | • local conditions such as access and egress<br>• work method statements<br>• site-specific job safety analyses and other site specific documentation as required<br>• task plans /schedules and structural plans. |
| ***Forces and loads*** may include but are not limited to: | • dead loads<br>• live loads<br>• static load<br>• dynamic loads<br>• wind loads. |
| ***Associated plant*** may include but is not limited to: | • gin poles<br>• flying foxes<br>• shear legs<br>• cable ways<br>• guyed derricks<br>• structures, and<br>• suspended scaffolds<br>• fabricated hung scaffolds. |
| ***Appropriate personnel*** may include but not limited to: | • engineers<br>• supervisors<br>• colleagues<br>• managers who are authorised to take responsibility for the workplace or operations. |
| ***Rigging equipment*** may include but is not limited to: | • scaffolds<br>• elevated work platforms<br>• stages<br>• personnel box<br>• cantilevered crane loading platforms<br>• mast climbers<br>• safety screens and shutters<br>• cranes including but not limited to:<br>  • non-slewing cranes<br>  • mobile slewing cranes<br>  • vehicle loading cranes<br>  • tower cranes<br>  • self-erecting tower cranes |


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## RANGE STATEMENT

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| | • portal boom cranes<br>• derrick cranes<br>• bridge and gantry. |
| ***Associated equipment*** may include but not limited to: | • all associated equipment at the basic and intermediate rigging level. |
| ***Procedures*** may include but not limited to: | • manufacturer's guidelines (instructions, specifications or checklists)<br>• industry operating procedures, relevant codes of practice<br>• workplace procedures (work instructions, operating procedures, checklists). |
| ***Safety equipment*** may include but not limited to: | • safety harness<br>• energy absorber<br>• lanyard<br>• inertia reel<br>• safety nets<br>• static lines. |
| ***Communication methods*** may include but are not limited to: | • verbal and non-verbal language<br>• written instructions<br>• signage<br>• hand signals<br>• listening<br>• questioning to confirm understanding<br>• appropriate worksite protocol.<br>**NB**: Mobile phones are not to be used for signalling purposes during the rigging process. |
| ***Appropriate personnel*** may include but are not limited to: | • other riggers<br>• doggers<br>• crane operators. |
| ***Communication equipment*** may include but is not limited to: | • fixed channel two-way radios. |
| ***Hazard prevention/control measures*** may include but are not limited to: | • safety tags on electrical switches/isolators<br>• powerlines are insulated<br>• safety observer used inside exclusion zone<br>• power disconnected<br>• traffic barricades and control<br>• pedestrian barricades<br>• trench covers |


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**RANGE STATEMENT**

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|---|---|
| | • movement of obstructions<br>• personal protective equipment<br>• adequate illumination. |
| ***Ground suitability*** may include but not limited to: | • rough uneven ground<br>• backfilled ground<br>• soft soils<br>• hard compacted soil<br>• rock<br>• bitumen<br>• concrete<br>• suspended concrete floors<br>• building roofs<br>• landings<br>• ground bearing pressure. |
| ***Temporary connections*** may include but not limited to: | • knots<br>• bends<br>• hitches<br>• whipping. |
| ***Flexible Steel Wire Rope*** (***FSWR***) ***includes***: | • identification, uses and connections.<br>May include termination for:<br>• static lines<br>• guys<br>• purchase systems<br>• lashing<br>• cranes<br>• hoist and winch ropes. |

# Unit Sector(s)

**Unit sector** Construction

# Co-requisite units

**Co-requisite units** Nil


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**Co-requisite units** Nil

# Functional area

## Functional area


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# CPCCOHS1001A Work safely in the construction industry

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit of competency specifies the outcomes required to undertake Occupational Health and Safety (OHS) induction training within the construction industry.

It requires the ability to demonstrate personal awareness of OHS legislative requirements, and the basic principles of risk management and prevention of injury and illness in the construction industry.

Licensing requirements will apply to this unit of competency depending on the regulatory requirements of each jurisdiction.

## Application of the Unit

**Application of the unit**

This unit of competency supports the attainment of the basic OHS knowledge required prior to undertaking designated work tasks within any of the sectors within the construction industry. The unit relates directly to the general induction training program specified by the *National Code of Practice for Induction for Construction Work* (ASCC 2007).

## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

**Prerequisite units**

Nil



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**Prerequisite units** Nil

## Employability Skills Information

**Employability skills** This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1. Identify OHS legislative requirements. | 1.1. Applicable ***OHS legislative requirements*** relevant to own work, role and responsibilities are identified and explained.<br>1.2. Duty of care requirements are identified.<br>1.3. Own responsibilities to comply with ***safe work practices*** are identified and explained. |
| 2. Identify construction hazards and control measures. | 2.1. Basic principles of risk management are identified.<br>2.2. ***Common construction hazards*** are identified and discussed.<br>2.3. ***Measures for controlling*** hazards and risks are identified. |
| 3. Identify OHS communication and reporting processes. | 3.1. OHS communication processes, information and documentation are identified and discussed.<br>3.2. Role of ***designated OHS personnel*** is identified and explained. |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 3.3. ***Safety signs and symbols*** are identified and explained.<br>3.4. Procedures and ***relevant authorities*** for reporting hazards, ***incidents*** and injuries are identified. |
| 4. Identify OHS incident response procedures. | 4.1. ***General procedures*** for responding to incidents and ***emergencies*** are identified and explained.<br>4.2. Procedures for accessing first aid are identified.<br>4.3. Requirements for the selection and use of relevant ***personal protective equipment*** are identified and demonstrated.<br>4.4. ***Fire safety equipment*** is identified and discussed. |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

### Required skills

Required skills for this unit are:

- communication skills to:
  - clarify OHS legislative requirements
  - verbally report construction hazards and risks
  - ask effective questions
  - relay information to others
  - discuss OHS issues and information
- comprehension skills to:
  - explain the basic OHS legislative requirements which will be applicable to own work
  - explain the meaning of safety signs and symbols
  - identify common construction hazards
  - discuss the basic principles of risk management.

### Required knowledge

Required knowledge for this unit is:

- applicable Commonwealth, State or Territory OHS legislation, regulations, standards, codes of practice and industry standards/guidance notes relevant to own


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### REQUIRED SKILLS AND KNOWLEDGE

work, role and responsibilities

- basic principles of risk management and assessment for construction work
- common construction hazards
- common construction safety signage and its meanings
- general construction emergency response and evacuation procedures
- general construction work activities that require licenses, tickets or certificates of competency
- general first aid response requirements
- general procedures for raising OHS issues
- general procedures for reporting OHS hazards, accidents, incidents, emergencies, injuries, near misses and dangerous occurrences
- general procedures for responding to hazards, incidents and injuries
- general workers' compensation and injury management requirements
- OHS hierarchy of controls
- OHS responsibilities and rights of duty holders, including:
  - persons in control of construction work/projects
  - employers and self-employed persons
  - supervisors
  - employees
  - designers
  - inspectors
  - manufacturers and suppliers
- own responsibilities to comply with safe work practices relating to:
  - housekeeping
  - identification of hazards
  - preventing bullying or harassment
  - smoking
  - use of amenities
  - use of drugs and alcohol
- role of OHS committees and representatives
- types of common personal protective equipment and fire safety equipment
- types of OHS information and documentation.

# Evidence Guide

### EVIDENCE GUIDE



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## EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

### Overview of assessment

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

Evidence must confirm personal awareness of the following:

- applicable OHS legislative and safety requirements for construction work including duty of care
- the range of common construction hazards and procedures for the assessment of risk and application of the hierarchy of control
- OHS communication processes, information and documentation including the role of OHS committees and representatives, the meaning of common safety signs and symbols, and procedures for reporting hazards, incidents and injuries
- general procedures for responding to incidents and emergencies including evacuation, first aid, fire safety equipment and PPE.

**Context of and specific resources for assessment**

- Resources must be available to support the program including participant materials and other information or equipment related to the skills and knowledge covered by the program.
- It is recommended that the assessment tool designed specifically to support this unit of competency will provide consistency in assessment outcomes.
- Where applicable, physical resources should include equipment modified for people with disabilities
- Access must be provided to appropriate assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in such a


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**EVIDENCE GUIDE**

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| | manner as is appropriate to the oracy, language and literacy levels of the operator, any cultural issues that may affect responses to the questions, and reflecting the requirements of the competency and the work being performed. |
| **Method of assessment** | Assessment methods may include more than one of the following:<br>• practical assessment<br>• oral questioning<br>• written test<br>• work-based activities<br>• simulated project based activity |

# Range Statement

**RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

| | |
|---|---|
| ***OHS legislative requirements*** relate to: | • Australian standards<br>• construction industry OHS standards and guidelines<br>• duty of care<br>• health and safety representatives, committees and supervisors<br>• licences, tickets or certificates of competency<br>• National Code of Practice for Induction Training for Construction Work<br>• national safety standards<br>• OHS and welfare Acts and regulations<br>• safety codes of practice. |
| ***Duty of care requirements*** relate to: | • legal responsibility under duty of care to do everything reasonably practicable to protect others from harm |


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## RANGE STATEMENT

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| | • own responsibilities to comply with safe work practices, including activities that require licences, tickets or certificates of competency<br>• relevant state OHS requirements, including employers and self-employed persons, persons in control of the work site, construction supervisors, designers, manufacturers and suppliers, construction workers, subcontractors and inspectors. |
| ***Safe work practices*** include: | • access to site amenities, such as drinking water and toilets<br>• general requirements for safe use of plant and equipment<br>• general requirements for use of personal protective equipment and clothing<br>• housekeeping to ensure a clean, tidy and safer work area<br>• no drugs and alcohol at work<br>• preventing bullying and harassment<br>• smoking in designated areas<br>• storage and removal of debris. |
| ***Risk*** relates to: | • likelihood of a hazard causing injury or harm. |
| ***Principles of risk management*** include: | • assessing the risks involved<br>• consulting and reporting ensuring the involvement of relevant workers<br>• controlling the hazard<br>• identifying hazards<br>• reviewing to identify change or improvement. |
| ***Hazard*** relates to: | • any thing (including an intrinsic property of a thing) or situation with the potential to cause injury or harm. |
| ***Common construction hazards*** include: | • confined spaces<br>• electrical safety<br>• excavations, including trenches<br>• falling objects<br>• hazardous substances and dangerous goods<br>• HIV and other infectious diseases<br>• hot and cold working environments<br>• manual handling<br>• noise<br>• plant and equipment |


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## RANGE STATEMENT

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|---|---|
| | • traffic and mobile plant<br>• unplanned collapse<br>• ultraviolet (UV) radiation<br>• working at heights. |
| ***Measures for controlling*** risk to eliminate or minimise hazards in accordance with the hierarchy of control include: | • elimination<br>• substitution<br>• isolation<br>• engineering control<br>• administrative control<br>• personal protective equipment. |
| ***OHS communication processes*** include: | • discussions with OHS representatives<br>• OHS meetings<br>• OHS notices, newsletters, bulletins and correspondence<br>• OHS participative arrangements<br>• processes for raising OHS issues<br>• toolbox talks<br>• workplace consultation relating to OHS issues and changes. |
| ***OHS information and documentation*** includes: | • accident and incident reports<br>• Acts and regulations<br>• Australian standards<br>• codes of practice<br>• construction documentation and plans<br>• emergency information contact<br>• evacuation plans<br>• guidance notes<br>• job safety analyses<br>• labels<br>• material safety data sheets (MSDS)<br>• proformas for reporting hazards, incidents and injuries<br>• reports of near misses and dangerous occurrences<br>• risk assessments<br>• safe work method statements<br>• safety meeting minutes<br>• site safety inspection reports. |
| ***Designated OHS personnel*** includes: | • first aid officers<br>• OHS committee members |


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## RANGE STATEMENT

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|---|---|
| | • OHS representatives<br>• supervisors. |
| ***Safety signs and symbols*** include: | • emergency information signs (e.g. exits, equipment and first aid)<br>• fire signs (e.g. location of fire alarms and firefighting equipment)<br>• hazard signs (e.g. danger and warning)<br>• regulatory signs (e.g. prohibition, mandatory and limitation or restriction)<br>• safety tags and lockout (e.g. danger tags, out of service tags). |
| ***Relevant authorities*** include: | • emergency services (e.g. police, ambulance, fire brigade and emergency rescue)<br>• OHS regulatory authority<br>• supervisor. |
| ***Incidents*** include: | • accidents resulting in personal injury or damage to property<br>• near misses or dangerous occurrences which do not cause injury but may pose an immediate and significant risk to persons or property, and need to be reported so that action can be taken to prevent recurrence, for example:<br>• breathing apparatus malfunctioning to the extent that the user's health is in danger<br>• collapse of the floor, wall or ceiling of a building being used as a workplace<br>• collapse or failure of an excavation more than 1.5 metres deep (including any shoring)<br>• collapse or partial collapse of a building or structure<br>• collapse, overturning or failure of the load bearing of any scaffolding, lift, crane, hoist or mine-winding equipment<br>• damage to or malfunction of any other major plant<br>• electric shock.<br>• electrical short circuit, malfunction or explosion<br>• uncontrolled explosion, fire or escape of gas, hazardous substance or steam<br>• any other unintended or uncontrolled incident or event arising from operations carried on at a |


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**RANGE STATEMENT**

| | |
|---|---|
| | workplace. |
| ***General procedures*** for responding to incidents and emergencies include: | • basic emergency response (keep calm, raise alarm, obtain help)<br>• evacuation<br>• notification of designated OHS personnel and authorities<br>• notification of emergency services (e.g. when and how)<br>• referring to site emergency plans and documentation. |
| ***Emergencies*** include: | • chemical spill<br>• fire<br>• injury to personnel<br>• structural collapse<br>• toxic and/or flammable vapours emission<br>• vehicle/mobile plant accident. |
| ***Personal protective equipment*** includes: | • aprons<br>• arm guards<br>• eye protection<br>• gloves<br>• hard hat<br>• hearing protection<br>• high visibility retro reflective vests<br>• protective, well fitting clothing<br>• respiratory protection<br>• safety footwear<br>• UV protective clothing and sunscreen. |
| ***Fire safety equipment*** includes: | • breathing apparatus<br>• fire blankets<br>• firefighting equipment. |

# Unit Sector(s)

**Unit sector** Construction



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# Co-requisite units

**Co-requisite units** Nil

# Functional area

**Functional area**


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# CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor** This unit of competency specifies the outcomes required to carry out OHS requirements through safe work practices at any on or off-site construction workplace. It requires the performance of work in a safe manner through awareness of risks and work requirements, and the planning and performance of safe work practices with concern for personal safety and the safety of others.

## Application of the Unit

**Application of the unit** This unit of competency covers fundamental OHS necessary to undertake work tasks within any sector in the construction industry. It includes the identification of hazardous materials, including asbestos, and compliance with legislated work safety practices. It does not cover removal of asbestos, which is a licensed activity.

The unit relates directly to the general induction training program specified by the *National Code of Practice for Induction for Construction Work* (ASCC 2007) required to enter a construction work site. Completion of unit CPCCOHS1001A covers this requirement.

## Licensing/Regulatory Information

Not Applicable



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# Pre-Requisites

**Prerequisite units** Nil

# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1. Identify and assess risks. | 1.1. ***Hazards*** in the work area are identified, assessed and reported to ***designated personnel***.<br>1.2. Safety risks in the work area are identified, assessed and reported to designated personnel.<br>1.3. ***Safe work practices***, ***duty of care*** requirements and safe work instructions are followed for controlling risks.<br>1.4. OHS, hazard, accident or ***incident*** reports are contributed to according to workplace procedures and ***Australian government and state or territory OHS legislation*** and relevant ***information***. |
| 2. Identify hazardous materials and other | 2.1. ***Hazardous materials*** on a work site are correctly identified and, if appropriate, handled and used |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| hazards on work sites. | according to company and legislated procedures.<br>2.2. ***Measures for controlling risks*** and construction hazards are applied effectively and immediately.<br>2.3. Hazardous materials that have safety implications for self and other workers are secured immediately they are identified, using appropriate ***signs and symbols***.<br>2.4. Asbestos-containing materials are identified on a work site and reported to designated personnel. |
| 3. Plan and prepare for safe work practices. | 3.1. Correct ***personal protective equipment*** and clothing for each area of construction work are identified, worn, correctly fitted, used and stored according to enterprise procedures.<br>3.2. Selection of ***tools***, ***equipment*** and ***materials***, and organisation of tasks are performed in conjunction with other personnel on site and in accordance with enterprise procedures.<br>3.3. Required barricades and signage are determined and erected at the appropriate site location.<br>3.4. Material safety data sheets (MSDS), and job safety analysis (JSA) and safe work method statements relevant to the work to be carried out are identified and applied. |
| 4. Apply safe work practices. | 4.1. Tasks are performed in a manner that is safe for operators, other personnel and the general community in accordance with legislative requirements, and enterprise policies and procedures.<br>4.2. Plant and equipment guards are used in accordance with manufacturer specifications, work site regulations and Australian standards where applicable.<br>4.3. Procedures and relevant authorities for reporting hazards, incidents and injuries are used.<br>4.4. ***Prohibited tools and equipment*** in areas with identified asbestos are recognised and not used.<br>4.5. Work site safety signs and symbols are identified and followed.<br>4.6. Work site area is cleared and maintained to prevent and protect self and others from incidents and accidents and to meet ***environmental requirements***. |
| 5. Follow emergency procedures. | 5.1. Designated personnel are identified in the event of an emergency for communication purposes.<br>5.2. Safe workplace procedures for dealing with accidents, |


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| ELEMENT | PERFORMANCE CRITERIA |
| --- | --- |
| | various ***types of fire*** and other emergencies are followed, including identification or use, if appropriate, of ***fire equipment*** within scope of responsibilities. |
| | 5.3. ***Emergency response and evacuation procedures*** are known, practised and carried out effectively when required. |
| | 5.4. Emergency first aid treatment of minor injuries is carried out correctly and details of any treatment administered are reported accurately to designated personnel as soon as possible. |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

### Required skills

Required skills for this unit are:

- ability to accurately recognise OHS hazards, including asbestos and take all opportunities to alleviate safety problems in a variety of construction work sites and environments
- capacity to deal calmly and effectively with any potential safety problems and work closely with other team members and supervisors to ensure safe working conditions are maintained
- communication skills to:
  - determine and report hazards and risks
  - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
  - follow instructions
  - read and interpret:
    - MSDS, JSA and safe work method statements
    - other relevant documentation
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication, such as hand signals
  - written skills to contribute to reports
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials


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## REQUIRED SKILLS AND KNOWLEDGE

- organisational skills, including the ability to plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
  - use a range of mobile technology, such as two-way radio and mobile phones
  - voice and hand signals to access and understand site-specific instructions.

### Required knowledge

Required knowledge for this unit is:

- asbestos management code prevention of exposure
- basic first aid procedures
- common construction industry terminology
- common workplace safety hazards and risks and procedures for reporting these to designated personnel
- construction industry communications equipment and use
- construction industry health and safety signage
- emergency response and evacuation procedures
- JSA and safe work method statements
- MSDS
- OHS hierarchy of control and role of OHS committees and representatives
- relevant legislation, regulations and workplace requirements relating to OHS, including hazard reduction and personal safety, including duty of care responsibilities, workers' compensation and injury management requirements
- safe manual handling techniques
- safe work practices in normal working environment
- safety equipment, policies and requirements for working in confined spaces and at height, including on rooves
- tools and equipment prohibited for use near identified asbestos-containing materials (ACM)
- types of fires and basic firefighting equipment
- types, possible location and risks of ACM, including serpentine and amphibole groups, and their use in common building materials
- types, purpose and use of construction industry personal protective equipment and clothing
- workplace and equipment safety requirements.


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# Evidence Guide

## EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

**Overview of assessment**

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

A person who demonstrates competency in this unit must be able to provide evidence of the ability to:

- correctly locate, interpret and apply relevant information, standards and specifications
- comply with a site safety plan, organisational policies, OHS regulations and state and territory legislation applicable to workplace operations, including quality requirements
- correctly identify ACM and policies and procedures for reporting this to designated personnel
- effectively communicate and work safely with others
- apply general procedures for responding to incidents and reporting hazards and injuries
- select and use firefighting equipment to extinguish a simulated mechanical fire
- evacuate a site through simulated response to an emergency, complying with workplace procedures.

**Context of and specific resources for assessment**

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the mandatory task requirements



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## EVIDENCE GUIDE

- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

**Method of assessment**

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge
- all assessment that is part of a structured learning experience must include a combination of direct,


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### EVIDENCE GUIDE

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| | indirect and supplementary evidence.<br><br>Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.<br><br>Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff. |

# Range Statement

### RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Hazards*** include:

- chemical spills
- electrical safety work in confined spaces
- excavations, including trenches
- falling objects
- fires
- gases
- hazardous materials
- high or very low temperatures
- HIV and other infectious diseases
- liquids under pressure
- manual handling
- moving machinery and equipment
- noise, dust and vapours
- overhanging beams
- protrusions
- sharp equipment
- traffic
- ultraviolet (UV) radiation
- unplanned collapse


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## RANGE STATEMENT

| | |
|---|---|
| | • working at heights. |
| ***Designated personnel*** to be contacted in case of an emergency, accident, fire or to report a risk such as identification of ACM are: | • designated safety officers, determined by the enterprise, who have undertaken specific safety response training<br>• managers or other senior personnel<br>• personnel competent and/or licensed in the safe handling of asbestos<br>• supervisors. |
| ***Safe work practices***: | • include:<br>  • day to day observation of OHS policies and procedures<br>  • emergency procedures<br>  • risk assessment<br>  • use of basic firefighting equipment<br>• relate to:<br>  • access to site amenities, such as drinking water and toilets<br>  • general requirements for safe use of plant and equipment<br>  • general requirements for use of personal protective equipment and clothing<br>  • housekeeping to ensure a clean, tidy and safer work area<br>  • no drugs and alcohol at work<br>  • preventing bullying and harassment<br>  • smoking in designated areas<br>  • storage and removal of debris. |
| ***Duty of care*** requirements: | • relate to:<br>  • legal responsibility under duty of care to do everything reasonably practicable to protect others from harm<br>  • relevant state and territory OHS requirements and include employers and self-employed persons, persons in control of the work site, construction supervisors, designers, manufacturers and suppliers, construction workers, subcontractors and inspectors<br>• may relate to:<br>  • own responsibilities to comply with safe work practices, including activities that |


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## RANGE STATEMENT

| | |
|---|---|
| | require licences, tickets or certificates of competency. |
| ***Incidents*** include: | • accidents resulting in personal injury or damage to property<br>• near misses or dangerous occurrences that do not cause injury but may pose an immediate and significant risk to persons or property, and need to be reported so that action can be taken to prevent recurrence, for example:<br>  • breathing apparatus malfunctioning to the extent that the user's health is in danger<br>  • collapse of the floor, wall or ceiling of a building being used as a workplace<br>  • collapse or failure of an excavation more than 1.5 metres deep (including any shoring)<br>  • collapse or partial collapse of a building or structure<br>  • collapse, overturning or failure of the load bearing of any scaffolding, lift, crane, hoist or mine-winding equipment<br>  • damage to or malfunction of any other major plant<br>  • electric shock<br>  • electrical short circuit, malfunction or explosion<br>  • uncontrolled explosion, fire or escape of gas, hazardous substance or steam<br>  • any other unintended or uncontrolled incident or event arising from operations carried on at a workplace. |
| ***Australian government and state or territory OHS legislative requirements*** include: | • Australian standards<br>• construction industry OHS standards and guidelines<br>• duty of care<br>• health and safety representatives, committees and supervisors<br>• JSA and safe work method statements<br>• licences, tickets or certificates of competency<br>• National Code of Practice for Induction Training for Construction Work<br>• national safety standards |


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## RANGE STATEMENT

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| | • OHS and welfare Acts and regulations<br>• safety codes of practice. |
| ***Information*** includes: | • diagrams or sketches<br>• emergency situation contacts<br>• evacuation plans<br>• instructions issued by authorised organisational or external personnel<br>• labels<br>• manufacturer specifications and instructions<br>• memos<br>• MSDS<br>• organisation work specifications and requirements<br>• plans and specifications<br>• regulatory and legislative requirements, such as Acts, regulations and codes of practice<br>• relevant Australian standards<br>• reports of near misses or accidents<br>• safe work procedures or equivalent documentation<br>• safety meeting minutes<br>• signage<br>• verbal or written and graphical instructions<br>• work bulletins<br>• work schedules. |
| ***Hazardous materials*** include: | • ACM<br>• cleaning chemicals, including those in pressurised containers<br>• glues<br>• insulation materials<br>• solvents<br>• treated timber products. |
| ***Measures for controlling risk*** or minimising hazards in accordance with the hierarchy of control include: | • elimination<br>• substitution<br>• isolation<br>• engineering control<br>• administrative control<br>• personal protective equipment. |
| ***Signs and symbols*** include: | • emergency information signs (exits, equipment, first aid)<br>• fire signs (location of fire alarms and |


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## RANGE STATEMENT

| | |
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| | firefighting equipment)<br>• hazard identification, facility or location signs<br>• regulatory signs (e.g. prohibition, mandatory and limitation or restriction), such as hazard signs (danger and warning)<br>• safety tags and lockout (danger tags, out of service tags)<br>• site safety, directional, traffic and warning signs and symbols. |
| ***Asbestos-containing materials are identified***: | • includes recognising common types of ACM that may be found in construction materials and buildings<br>• covers asbestos rope/fabrics, asbestos cement sheeting, asbestos cement piping and lagging on pipes, bituminous waterproof membrane, fire doors, electrical switchboards, millboard, and sheeting under ceramic or vinyl floor tiles in wet areas. |
| Asbestos-containing materials are ***reported*** to: | • person in control of the workplace as set out in the relevant Asbestos Management Code. |
| ***Personal protective equipment*** is to include: | • aprons<br>• arm guards<br>• caps<br>• dust mask/respirators<br>• ear muffs/plugs<br>• gloves<br>• hard hats<br>• high visibility retro reflective vests<br>• jackets<br>• overalls<br>• safety glasses/goggles<br>• steel capped boots<br>• UV protective clothing and sunscreen. |
| ***Tools and equipment*** include: | • firefighting equipment<br>• first aid kit<br>• ladders and work platforms<br>• personal protective equipment. |
| ***Materials*** include: | • first aid materials suitable for emergency first aid treatment of minor injuries. |
| ***Prohibited tools and equipment*** that cannot be used near identified | • high-speed abrasive power and pneumatic tolls, high pressure water cleaners, compressed |


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**RANGE STATEMENT**

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|---|---|
| ACM include: | air or abrasive blasting<br>• any vacuum cleaning equipment not specifically designed for safe work with asbestos. |
| ***Environmental requirements*** are to cover workplace quality management and include: | • clean-up protection<br>• stormwater protection<br>• waste management. |
| ***Types of fire*** includes: | • electrical, chemical, gas, mechanical, paper, wood or natural fire. |
| ***Fire equipment*** includes: | • breathing apparatus<br>• fire extinguishers<br>• fire hydrant and hoses<br>• fire reel<br>• fire truck<br>• manual firefighting instruments, such as fire blankets. |
| ***Emergency response and evacuation procedures*** include: | • emergencies, such as fire, toxic and/or flammable vapours emission, vehicle/mobile plant accident, structural collapse, chemical spill and injury to personnel<br>• extinguishing fires, organisational first aid requirements and evacuation. |

# Unit Sector(s)

**Unit sector** Construction

# Co-requisite units

**Co-requisite units** Nil


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# Functional area

## Functional area


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# CPPSEC3009A Prepare and present evidence in court

## Modification History

Not Applicable

## Unit Descriptor

| | |
|---|---|
| **Unit descriptor** | This unit of competency specifies the outcomes required to prepare and present information which may be used in a judicial or quasi-judicial environment as evidence. It requires the ability to gather and manage information, prepare and give evidence in court, store evidence and complete documentation.<br><br>This unit may form part of the licensing requirements for persons engaging in security operations in those states and territories where these are regulated activities. |

## Application of the Unit

| | |
|---|---|
| **Application of the unit** | This unit of competency has wide application in the security industry in those roles involving operational activities. Competency requires legal and operational knowledge applicable to relevant sectors of the security industry. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines. |

## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

Not Applicable


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# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **1 Gather and organise evidence**. | 1.1 Applicable provisions of ***legislative*** and ***organisational requirements*** relevant to the preparation and presentation of ***evidence*** are identified and complied with.<br>1.2 A summary of the case history and other ***relevant information*** is gathered and organised.<br>1.3 Information to be used as evidence is confirmed for reliability and relevance in accordance with organisational procedures.<br>1.4 Evidence is organised in accordance with ***evidence management*** principles. |
| **2 Prepare for court proceedings**. | 2.1 Briefing sessions are held with relevant persons to confirm ***court arrangements***, role and involvement.<br>2.2 Information to be presented as evidence and negotiation parameters is discussed with ***relevant persons***.<br>2.3 Briefs of evidence are submitted in a logical sequence appropriate to jurisdictional requirements and comply with the relevant rules of evidence.<br>2.4 Material to be used or referred to in court proceedings is thoroughly reviewed prior to presentation in court to ensure familiarity, completeness and availability.<br>2.5 ***Documentation and exhibits*** are prepared to ensure their acceptability for use in court in accordance with procedural requirements. |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **3 Present evidence**. | 3.1 ***Rules of evidence***, procedures and ***protocols*** relevant to the jurisdiction involved are observed and adhered to throughout proceedings. |
| | 3.2 Personal presentation, manner and language are consistent with court protocols. |
| | 3.3 Evidence is admissible and presented in a clear, concise and unambiguous manner and complies with rules of evidence. |
| | 3.4 Specialist opinion within own level of qualification and expertise is provided on request in accordance with organisational procedures. |
| | 3.5 Outcomes of proceedings and associated documentation and evidence are noted, filed and stored in accordance with legislative requirements. |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

### Required skills

- adhere to court protocols and procedures
- check and review documentation for accuracy, spelling and grammar
- communicate effectively with people from different social, cultural and ethnic backgrounds and of varying physical and mental abilities
- communicate verbally and non-verbally in a clear and concise manner
- identify and comply with applicable legal and procedural requirements, including licensing requirements
- identify relevant and valid information as admissible evidence
- maintain, store and preserve evidence
- prepare documentation using appropriate structure and language
- read, analyse and interpret information
- record and accurately report information
- research, select and organise information
- select and use information technology appropriate to task
- store and preserve evidence
- use a range of business equipment and technology appropriate to meet task requirements.
- verify validity of information


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### REQUIRED SKILLS AND KNOWLEDGE

- write reports using formal structure and language.

### Required knowledge

- briefing, documentation and preparation requirements
- court protocols and procedures relevant to the jurisdiction
- document and evidence management systems
- evidence preparation and presentation requirements
- general principles regarding the admissibility of evidence in courts
- organisation policies and procedures relating to own role and responsibilities and providing specialist opinion
- principles of effective communication
- privacy and confidentiality requirements
- procedures for handling and managing evidential exhibits
- relevant industry codes of practice and legislation including 'rules of evidence' and 'continuity of evidence'
- requirements for handling and managing evidential exhibits
- storage requirements for information that is susceptible to spoil or damage (film, computer tapes)
- techniques to verify and validate information.

# Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | A person who demonstrates competency in this unit must be able to provide evidence of:<br>• sourcing, organising and confirming validity of information<br>• following up outcomes of proceedings and feedback, reviewing implications as the basis for appropriate actions to be implemented<br>• managing and storing evidence and material to ensure its preservation, and completing relevant documentation in compliance with applicable legislation and licensing requirements<br>• presenting evidence in a clear, concise and unambiguous manner and, as required, providing specialist opinion within |


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| | |
|---|---|
| | own level of qualification and expertise<br>• researching and selecting information that is determined relevant and valid for use as admissible evidence in a judicial or quasi-judicial environment<br>• understanding and complying with court protocols, legislative and procedural requirements including appropriate use of communication and language. |
| **Context of and specific resources for assessment** | Context of assessment includes:<br>• a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.<br>Resource implications for assessment include:<br>• access to plain English version of relevant statutes and procedures<br>• access to a registered provider of assessment services<br>• access to a suitable venue and equipment<br>• assessment instruments including personal planner and assessment record book<br>• work schedules, organisational policies and duty statements.<br>Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support. |
| **Method of assessment** | This unit of competency could be assessed using the following methods of assessment:<br>• observation of processes and procedures<br>• questioning of underpinning knowledge and skills. |
| **Guidance information for assessment** | Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.<br>Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.<br>Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff. |


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# Range Statement

## RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Legislative requirements may relate to***:

- apprehension and powers of arrest
- Australian standards and quality assurance requirements
- counter-terrorism
- crowd control and control of persons under the influence of intoxicating substances
- force continuum, use of force guidelines
- general 'duty of care' responsibilities
- inspection of people and property, and search and seizure of goods
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state, territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - Occupational Health and Safety (OHS)
- relevant industry codes of practice
- trespass and the removal of persons
- use of restraints and weapons:
  - batons
  - firearms
  - handcuffs
  - spray.

***Organisational requirements may relate to***:

- access and equity policies, principles and practices
- business and performance plans
- client service standards
- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures


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- emergency and evacuation procedures
- employer and employee rights and responsibilities
- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes and standards
- resource parameters and procedures
- roles, functions and responsibilities of security personnel
- storage and disposal of information.

***Evidence may include***:

- audio or video recordings
- charts
- documents
- drawings
- facts
- photographs or images
- physical items (eg specimens, samples)
- statements
- testimonies.

***Relevant information may relate to***:

- admissible evidence
- computer-based information
- data
- original and back-up video or audio tapes
- original, copy or negative film or photographs
- physical items
- precedents
- records of interview
- reports or documentation
- specimens and samples
- tape recordings
- witness statements.

***Evidence management may involve***:

- constant reviews during an investigation
- continuity of possession
- labelling
- protection and storing of evidence
- referral to prosecution organisations at any stage
- systematic recording such as dating and numbering
- using written or electronic database systems.

***Courts* may include**:

- criminal, coronial and civil
- district
- federal


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- Human Rights and Equal Opportunity Commission
- Industrial Relations Commission
- Land and Environment Court
- local
- magistrates
- Royal Commissions
- supreme
- tribunals.

***Court arrangements* may relate to**:

- confirmation of evidence requirements
- date, location and time of proceedings
- documentation requirements.

***Relevant persons* may include**:

- clients
- colleagues
- judicial representatives
- legal representatives
- police
- supervisor.

***Documentation and exhibits* may relate to**:

- affidavits
- items of evidence
- media footage
- photographs
- radio and telephone records or logs
- reports
- reports of incidents
- transcripts of conversation.

***Rules of evidence* may involve**:

- admissibility
- contemporaneousness.

**Court *protocols* may relate to**:

- examination and cross-examination procedures
- forms of address
- general demeanour
- impartiality
- punctuality
- readiness of self and evidence
- respect for people and offices held
- standards of dress, physical appearance
- voice clarity and language.


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# Unit Sector(s)

**Unit sector** Security

# Competency field

**Competency field** Operations


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# CPPSEC5003A Assess security risk management options

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit of competency specifies the outcomes required to assess options for the management of security risk in an organisational environment. It requires the ability to compare treatment options against identified security risks, rank suitable treatment options, and prepare and present recommended options and supporting analysis.

This unit may form part of the licensing requirements for persons engaged in risk assessment operations in those states and territories where these are regulated activities.

## Application of the Unit

**Application of the unit**

This unit of competency has application in those work roles involving the assessment of security risks in an organisational environment. Competency requires legal and operational knowledge applicable to relevant sectors of the security industry. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

Not Applicable



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# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **1 Determine security risk**. | 1.1 Applicable provisions of ***legislative*** and ***organisational requirements***, and ***relevant standards*** for assessment activities are identified and complied with. |
| | 1.2 Type and nature of ***security risks*** are determined based on an accurate and current assessment of the client's ***operating environment*** and core business operations. |
| | 1.3 Security risks are ranked in terms of degree of risk and linked to potentially suitable ***treatment options***. |
| | 1.4 Degree of risk is determined by an assessment of current and valid data. |
| **2 Identify and assess treatment options**. | 2.1 Treatment options are identified and confirmed to be commensurate with the identified type, ***nature and cause*** of security risk. |
| | 2.2 Treatment options applied in a similar context are researched and assessed for effectiveness against documented and ***verifiable evidence***. |
| | 2.3 ***Criteria*** for assessment of risks against treatment options are consistent with recognised industry practice and relevant standards. |
| | 2.4 Treatment options appropriate to the full range of potential security risks are selected and prioritised according to established criteria. |
| **3 Review and** | 3.1 A report outlining assessment findings and recommended treatment options is prepared and ***presented*** to relevant |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **present findings**. | persons.<br>3.2 Analysis and recommendations are clear, coherent and consistent with ***terms of reference*** and supported by verifiable evidence.<br>3.3 Advice outlining possible consequences of not implementing recommended treatment options is included in the analysis.<br>3.4 Effective ***interpersonal techniques*** and presentation procedures are used to enhance understanding and acceptance of recommended treatment options. |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

### Required skills

- accurately determine identified risks and threats
- apply reasoning and logical analysis in assessment processes
- assess risks and threats
- coaching and mentoring to provide support to colleagues
- collate numerical data
- communicate in a clear and concise manner
- determine suitability of treatment option against security risk
- determine type and nature of security risks
- identify and assess assets
- prepare and present verbal and written reports
- prioritise tasks and organise schedules
- prioritise treatment options in terms of degree of security risk
- provide written communication to a standard required for compiling reports and summarising information
- relate to persons of different social and cultural backgrounds and varying physical and mental abilities
- research and analyse information
- source and access information
- use a variety of problem-solving techniques
- use business and information technology.

### Required knowledge


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### REQUIRED SKILLS AND KNOWLEDGE

- applicable Australian standards, industry codes of practice and legislation including Occupational Health and Safety (OHS)
- basic understanding of insurance in terms of acceptable risks, premium ranges and liabilities
- client's operating environment and business operations
- concept of integrated security measures including physical security; information technology security, and security of personnel and information
- concept of litigation
- current security systems and technologies available expertise
- distinction between information and intelligence
- preparation of documentation and presentation procedures
- principles of basic statistics and numeracy
- principles of effective communication
- principles of AS/NZS 4360: 2004 Risk management and related guidelines
- privacy and confidentiality requirements
- relevant industry codes of practice
- relevant legislation and regulations including licensing requirements
- risk assessment techniques
- types of treatment options appropriate to the range of security risks and threats applicable to premises and businesses.

# Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

A person who demonstrates competency in this unit must be able to provide evidence of understanding and knowledge of the following:

- evaluating risks against developed criteria and selecting treatment options commensurate with the level and nature of potential risks based on the principles of AS/NZS 4360: 2004
- identifying the nature, cause and range of potential security risks to client based on an assessment of valid and relevant data
- preparing and presenting an analysis and options related to management of security risks and using effective interpersonal skills to enhance client understanding and acceptance of recommendations.


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| | |
|---|---|
| **Context of and specific resources for assessment** | Context of assessment includes:<br>• a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.<br>Resource implications for assessment include:<br>• access to a registered provider of assessment services<br>• access to a suitable venue and equipment<br>• access to plain English version of relevant statutes and procedures<br>• assessment instruments including personal planner and assessment record book<br>• work schedules, organisational policies and duty statements.<br>Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support. |
| **Method of assessment** | This unit of competency should be assessed using questioning of underpinning knowledge and skills. |
| **Guidance information for assessment** | Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.<br>Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.<br>Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff. |

# Range Statement

## RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on


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the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Legislative requirements may relate to***:

- apprehension and powers of arrest
- Australian standards and quality assurance requirements
- counter-terrorism
- crowd control and control of persons under the influence of intoxicating substances
- force continuum, use of force guidelines
- general 'duty of care' responsibilities
- inspection of people and property, and search and seizure of goods
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state and territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - OHS
- relevant industry codes of practice
- trespass and the removal of persons
- use of restraints and weapons:
  - batons
  - firearms
  - handcuffs
  - spray.

***Organisational requirements may relate to***:

- access and equity policies, principles and practices
- business and performance plans
- client service standards
- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures
- emergency and evacuation procedures
- employer and employee rights and responsibilities
- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes


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| | |
|---|---|
| | and standards<br>• resource parameters and procedures<br>• roles, functions and responsibilities of security personnel<br>• storage and disposal of information. |
| ***Relevant standards***: | • must include AS/NZS 4360: 2004 Risk management<br>• may relate to:<br>  • AS2630-1983 Guide to the selection and application of intruder alarm systems for domestic and business premises<br>  • HB 167:2006 Security Risk Management<br>  • HB 436 Risk Management Guidelines - Companion to AS/NZS 4360<br>  • HB 231:2000 Information security risk management guidelines<br>  • other standards relating to the treatment options as published and distributed by Standards Australia. |
| ***Security risks may be***: | • acceptable<br>• across all aspects of operations<br>• across limited number of operations<br>• high likelihood<br>• long-term<br>• low likelihood<br>• potentially avoidable<br>• potentially unavoidable<br>• short-term<br>• unacceptable. |
| ***Risk* relates to**: | • the chance of something happening that will have an impact on objectives. |
| ***Risks may relate to***: | • break-ins<br>• business operations<br>• confidentiality<br>• deliberate or accidental damage<br>• finance<br>• OHS<br>• personnel<br>• theft<br>• threats of loss, harm or damage to persons or property<br>• trespass<br>• unauthorised access<br>• vandalism<br>• workplace environment. |
| **Assessment of** | • competitors |


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| | |
|---|---|
| ***operating environment* may relate to**: | • core business functions<br>• environmental issues<br>• financial markets<br>• industrial relations<br>• market share<br>• nature of operations<br>• neighbours<br>• scale of operations<br>• situational issues<br>• size<br>• stability<br>• stability of company, organisation, industry and market<br>• stakeholders<br>• type of industry<br>• workforce. |
| **Security risk *nature and causes* may be**: | • client-based<br>• external<br>• financial<br>• internal<br>• mechanical<br>• operational<br>• skill based. |
| ***Treatment options* may relate to**: | • attendance<br>• confidentiality<br>• interventions<br>• regularity of presence<br>• rehearsals<br>• surveillance. |
| ***Verifiable evidence* may include**: | • incident reports<br>• insurance data<br>• official records<br>• organisational data<br>• video evidence<br>• witness statements. |
| ***Criteria* may include assessment of**: | • budgetary constraints<br>• environmental issues<br>• industrial relations<br>• legal issues<br>• nature of the task<br>• operating environment of organisation<br>• organisation structure |


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- organisational image
- political influences
- terms of reference
- timeframes.

***Presentation* may involve**:

- charts and statistical reports
- computer equipment including data projectors
- models
- real-time demonstration
- simulation
- the use of audio and video.

***Terms of reference* may relate to**:

- client expectations
- cost
- limitations and exclusions of access to information
- lines of authority
- operational environment
- roles and responsibilities
- scale of the assessment eg full-scale operation or limited to a particular section or operation of the company
- security and other clearances
- timeframe.

***Interpersonal techniques may involve***:

- active listening
- being non-judgemental
- being respectful and non-discriminatory
- constructive feedback
- control of tone of voice and body language
- culturally aware and sensitive use of language and concepts
- demonstrating flexibility and willingness to negotiate
- effective verbal and non-verbal communication
- maintaining professionalism
- providing sufficient time for questions and responses
- reflection and summarising
- two-way interaction
- use of plain English
- use of positive, confident and cooperative language.

# Unit Sector(s)

**Unit sector** Security


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# Competency field

**Competency field** Security and risk management


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# CPPSEC5004A Prepare security risk management plan

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit of competency specifies the outcomes required to plan and prepare for security risks. It requires the ability to develop a security risk management plan which incorporates suitable strategies for risk identification and treatment, and contingency arrangements compatible to identified risk.

This unit may form part of the licensing requirements for persons engaged in security operations in those states and territories where these are regulated activities.

## Application of the Unit

**Application of the unit**

This unit of competency has wide application in a range of managerial roles in the security industry. Work is performed under minimal supervision and competency requires a high level of judgement and decision-making. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

Not Applicable

## Employability Skills Information

**Employability skills**

This unit contains employability skills.



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# Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **1 Evaluate security risks**. | 1.1 ***Security risks*** are identified and consequences interpreted in accordance with client, ***organisational*** and ***legislative requirements*** and ***relevant standards***.<br>1.2 Acceptable and unacceptable risks are clearly distinguished and confirmed.<br>1.3 High priority risks are emphasised and specified to ensure the development of appropriate ***controls***.<br>1.4 Existing controls are evaluated to determine impact on risk occurrence and required modifications identified. |
| **2 Develop action plans**. | 2.1 Action plans are developed identifying key tasks, activities and resources to achieve security risk management objectives.<br>2.2 ***Type of risk*** associated with security context is identified and appropriate controls incorporated into planning processes.<br>2.3 Communication and reporting arrangements for maintaining currency of action plans are established.<br>2.4 ***Contingency arrangements*** for actions are developed and incorporated into plans. |
| **3 Design treatment options**. | 3.1 Operating environment monitored to confirm potential and real risks, threats and required treatments.<br>3.2 ***Treatment options*** are selected in line with available organisational practices, and implications researched, clarified and approved by ***relevant persons***.<br>3.3 Feasible treatment options are documented and costed to ensure compatibility with nature of risk and client requirements. |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 3.4 Treatment options are linked to whole or part of security risks and verified with clients for suitability to security context. |
| | 3.5 ***Tests*** on treatment options are conducted to determine applicability in the field, and results statistically analysed to confirm effectiveness of treatments. |
| **4 Develop security risk management plan**. | 4.1 ***Management requirements*** are identified and accounted for in development of security risk management plan. |
| | 4.2 Procedures for monitoring and review of security risk management activities are developed to ensure continuous improvement. |
| | 4.3 Security risk management plan is developed incorporating all ***relevant information*** in line with appropriate ***format*** and relevant standards. |
| | 4.4 Plan is finalised and presented to client for review and approval in accordance with organisational procedures. |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

### Required skills

- access and use workplace information
- active listening
- adapt personal communication style to a variety of situations
- analyse and evaluate information and data
- coaching and mentoring to provide support to colleagues
- collate numerical data
- communicate in a clear and concise manner
- design treatment options and tests
- negotiation
- numeracy skills to calculate resources and costings
- planning
- reading to interpret complex information
- relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities
- solve problems to deal with complex and non routine difficulties
- use technology to research, analyse and report information


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### REQUIRED SKILLS AND KNOWLEDGE

- writing to develop complex reports.

### Required knowledge

- applicable Occupational Health and Safety (OHS) licensing and legislative compliance requirements
- application of the hierarchy of control
- approved communication terminology and call signs
- available support agencies and the types of services offered
- basic methods for statistical analysis and presentation of statistical data
- difference between negative and positive language
- differences between written and spoken English
- how to read and use body language to gain confidence of others
- how to record information which may be used for legal purposes
- how to safeguard confidential information
- how to use business equipment to present information
- negotiation techniques
- OHS implications relating to use of guard dogs, apprehension or arrest of persons, use of firearms, use of restraints, handcuffs, batons and spray
- organisational standards for the presentation and maintenance of written information
- principles of AS/NZS 4360: 2004 Risk management
- risk management principles and practices
- sources of supply of security equipment or systems
- tactical response measures
- use of force guidelines.

# Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | A person who demonstrates competency in this unit must be able to provide evidence of:<br>• identifying and evaluating security risks and control measures in compliance with client, organisational and legislative requirements<br>• designing and developing effective action plans which |


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incorporate strategies for treating risks, contingency arrangements, key tasks and resources, and communication and reporting
- designing and testing risk treatment options which are compatible with nature of risk and client requirements, and conducting an analysis of the results to confirm effectiveness of treatments
- developing a comprehensive risk management plan in an appropriate format which incorporates a broad range of relevant information, considers implementation issues, and incorporates continuous improvement mechanisms based on the principles of AS/NZS 4360:2004.

**Context of and specific resources for assessment**

Context of assessment includes:

- a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.

Resource implications for assessment include:

- access to a registered provider of assessment services
- access to a suitable venue and equipment
- access to plain English version of relevant statutes and procedures
- assessment instruments including personal planner and assessment record book
- work schedules, organisational policies and duty statements.

Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

**Method of assessment**

This unit of competency should be assessed using questioning of underpinning knowledge and skills.

**Guidance information for assessment**

Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.

Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.

Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.


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# Range Statement

## RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Security risks may relate to***:

- biological hazards
- chemical spills
- client contact
- electrical faults
- explosives
- financial viability
- injury to personnel
- noise, light, heat, smoke
- persons carrying weapons
- persons causing a public nuisance
- persons demonstrating suspicious behaviour
- persons suffering from emotional or physical distress
- persons under the influence of intoxicating substances
- persons with criminal intent
- persons, vehicles and equipment in unsuitable locations
- property or people
- security systems
- suspicious packages or substances
- systems or process failures
- terrorism
- violence or physical threats.

***Risk* relates to**:

- the chance of something happening that will have an impact on objectives.

***Organisational requirements may relate to***:

- client service standards
- implementation of OHS system
- policies for ensuring privacy and confidentiality of information
- procedures for archiving electronic and hard-copy records
- procedures for recording, storing and destroying information


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- standard of language, literacy and numeracy required
- use of organisational equipment and resources.

***Legislative requirements may relate to***:

- anti-discrimination and diversity
- Australian standards, codes of practice and regulations
- award and enterprise agreements
- duty of care
- evidence collection
- licensing arrangements and certification requirements
- OHS issue resolution
- relevant commonwealth, state and territory OHS legislation, codes of practice and regulations
- roles and responsibilities of OHS representatives and committees
- trade practices
- use of force.

***Relevant standards***:

- must include AS/NZS 4360: 2004 Risk management
- may relate to:
  - AS2630-1983 Guide to the selection and application of intruder alarm systems for domestic and business premises
  - HB 167:2006 Security Risk Management
  - HB 436 Risk Management Guidelines - Companion to AS/NZS 4360
  - HB 231:2000 Information security risk management guidelines.

***Controls* may include**:

- communication
- deployment of specialist expertise or equipment
- development of procedures
- monitoring and surveillance
- physical attendance and security
- staff ratios and resource deployment
- training of personnel.

***Type of risk may be***:

- intermediate
- likely to occur
- major
- minor
- physical
- potentially avoidable
- potentially unavoidable
- property related
- unlikely to occur.

***Contingency***

- approvals and licenses


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| | |
|---|---|
| ***arrangements* may include**: | • availability of additional resources<br>• background information<br>• back-up<br>• checklists and reporting<br>• identification requirements<br>• instructions. |
| ***Project planning requirements* may include**: | • key outcomes<br>• milestones<br>• personnel involvement<br>• resources<br>• tasks<br>• timelines. |
| ***Treatment options* may include**: | • controlled interruptions to normal operations<br>• exercises<br>• information collation and analysis<br>• simulations<br>• surveillance<br>• verification requirements. |
| ***Relevant persons* may include**: | • authorities<br>• client<br>• managers<br>• technical specialists. |
| ***Tests* may include**: | • alarms and other warning devices<br>• exercises<br>• inspections<br>• interviews<br>• rehearsals<br>• simulations. |
| ***Management requirements* may relate to**: | • adherence to organisational policies and procedures<br>• allocation of suitable resources and expertise<br>• feedback and monitoring arrangements<br>• preparation of documentation and checklists<br>• procedures to maximise safety of operatives<br>• project planning<br>• reporting procedures and timeframes<br>• risk management timelines and objectives specified in action plans. |
| ***Relevant information* may include** | • action plans<br>• backup systems or processes<br>• contingency plans<br>• details and results of testing and relevant statistical |


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analysis
- identified assets
- identified management requirements
- implementation issues
- operational issues
- resource requirements including allocation and location of resources
- review and monitoring procedures
- risk assessment
- supporting evidence
- threat assessment
- treatment options and strategies linked to risks and threats.

***Format* may relate to**:
- accuracy
- common industry terminology
- enclosures and attachments
- length
- sequence of coverage
- style
- use of abbreviations
- use of appendices
- use of plain English.

## Unit Sector(s)

**Unit sector** Security

## Competency field

**Competency field** Security and risk management


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# CPPSEC5005A Implement security risk management plan

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit of competency specifies the outcomes required to facilitate implementation of a security risk management plan. It requires the ability to allocate roles and responsibilities, coordinate and monitor implementation procedures, and evaluate the effectiveness of treatment options.

This unit may form part of the licensing requirements for persons engaged in risk assessment operations in those states and territories where these are regulated activities.

## Application of the Unit

**Application of the unit**

This unit of competency has wide application in a range of managerial roles in the security industry. Work is performed under minimal supervision and competency requires a high level of judgement and decision-making. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.

## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

Not Applicable

## Employability Skills Information

**Employability skills**

This unit contains employability skills.



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# Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **1 Organise functions and tasks**. | 1.1 Applicable provisions of ***legislative*** and ***organisational requirements***, and ***relevant standards*** for ***risk*** assessment activities are identified and complied with. |
| | 1.2 ***Roles and responsibilities*** associated with the implementation of the security risk management plan are clearly defined and articulated to ***relevant persons***. |
| | 1.3 ***Activities*** and targets are linked to achievement of milestones and outcomes in project action plans. |
| | 1.4 ***Resources***, ***equipment and materials*** to assist plan implementation are suitable to project purposes and available within specified timelines. |
| | 1.5 Information related to the implementation of the plan is accurately and promptly distributed using established communication channels. |
| | 1.6 Confidentiality requirements are confirmed and maintained in accordance with client and organisational requirements. |
| **2 Monitor risk context**. | 2.1 Emerging risks or threats to assets are monitored and assessed to maintain ongoing suitability of implemented security risk ***treatment options***. |
| | 2.2 Changes to operating environment are monitored and corrective measures determined and incorporated into the plan as required. |
| | 2.3 ***Targets and outcomes*** are regularly reviewed and evaluated to ensure achievement of ***project aims*** based on relevant standards. |
| | 2.4 Existence and occurrence of risks are accurately and |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | comprehensively documented providing an assessment of the type, nature and cause. |
| | 2.5 Application of contingencies and corrective measures are accurately documented. |
| **3 Review effectiveness of treatment options**. | 3.1 Long and short-term options are costed to ensure an accurate estimate of resources is allocated to support the plans. |
| | 3.2 Discrepancies between treatment options and risk incidence are monitored and addressed through appropriate modifications to plans. |
| | 3.3 Stages of implementation are identified and resources and options are coordinated to ensure access and availability. |
| | 3.4 Corrective measures are developed, tested and incorporated into the risk management plan. |
| | 3.5 Feedback on effectiveness of treatment options is sought and provided to relevant personnel. |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

### Required skills

- allocate work tasks and functions
- coaching and mentoring to provide support to colleagues
- collate and analyse numerical data
- communicate in a clear and concise manner
- delegate roles and responsibilities
- determine suitability of treatment option against security risk
- determine type and nature of security risks and threats
- manage projects
- monitor implementation procedures
- monitor risk context and identify emerging risks or threats to assets
- prepare and present verbal and written reports
- prioritise tasks and organise schedules
- prioritise treatment options in terms of degree of security risk
- provide written communication to a standard required for compiling reports and summarising information


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### REQUIRED SKILLS AND KNOWLEDGE

- relate to persons of different social and cultural backgrounds and varying physical and mental abilities
- research and analyse data and information
- summarise information
- use a variety of problem-solving techniques
- use business equipment and technology.

### Required knowledge

- availability and capability of project management software
- concept of integrated security measures including physical security; information technology security, and security of personnel and information
- current security systems and technologies and available expertise
- operating environment and business operations
- preparation of documentation procedures
- principles of effective communication
- principles of AS/NZS 4360: 2004 Risk management and related guidelines
- privacy and confidentiality requirements
- process of security risk management
- relevant legislation and regulations including licensing requirements
- risk assessment techniques and processes
- sources of supply of security equipment and systems
- types of treatment options appropriate to the range of security risks and threats applicable to premises and businesses.

# Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

A person who demonstrates competency in this unit must be able to provide evidence of:

- monitoring emerging risks to ensure ongoing suitability of risk management plan based on principles of AS/NZS 4360: 2004
- efficient allocation of resources to support risk management plan
- effectively communicating designated roles, responsibilities and work schedules to security personnel


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- preparing documentation and guidelines with a clear explanation of the incidence, nature and causes of risks and appropriate contingency arrangements
- systematically reviewing the effectiveness of treatment options and making appropriate modifications as required to address any discrepancies between treatment options and risk incidence.

**Context of and specific resources for assessment**

Context of assessment includes:

- a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.

Resource implications for assessment include:

- access to a registered provider of assessment services
- access to a suitable venue and equipment
- access to plain English version of relevant statutes and procedures
- assessment instruments including personal planner and assessment record book
- work schedules, organisational policies and duty statements.

Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

**Method of assessment**

This unit of competency should be assessed using questioning of underpinning knowledge and skills.

**Guidance information for assessment**

Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.

Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.

Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.


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# Range Statement

## RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Legislative requirements may relate to***:

- apprehension and powers of arrest
- Australian standards and quality assurance requirements
- cabling
- counter-terrorism
- crowd control and control of persons under the influence of intoxicating substances
- Force continuum, use of force guidelines
- general 'duty of care' responsibilities
- inspection of people and property, and search and seizure of goods
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state and territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - Occupational Health and Safety (OHS)
- relevant industry codes of practice
- surveillance
- telecommunications
- trespass and the removal of persons
- use of listening and recording devices
- use of restraints and weapons:
  - batons
  - firearms
  - handcuffs
  - spray.

***Organisational requirements may***

- access and equity policies, principles and practices
- business and performance plans


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***relate to***:

- client service standards
- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures
- emergency and evacuation procedures
- employer and employee rights and responsibilities
- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes and standards
- resource parameters and procedures
- roles, functions and responsibilities of security personnel
- storage and disposal of information.

***Relevant standards***:

- must include AS/NZS 4360: 2004 Risk management
- may relate to:
  - AS2630-1983 Guide to the selection and application of intruder alarm systems for domestic and business premises
  - HB 167:2006 Security Risk Management
  - HB 436 Risk Management Guidelines - Companion to AS/NZS 4360
  - HB 231:2000 Information security risk management guidelines.

***Risk* relates to**:

- the chance of something happening that will have an impact on objectives.

***Security risks may relate to***:

- biological hazards
- chemical spills
- client contact
- electrical faults
- explosives
- financial viability
- injury to personnel
- noise, light, heat, smoke
- persons carrying weapons
- persons causing a public nuisance
- persons demonstrating suspicious behaviour
- persons suffering from emotional or physical distress
- persons under the influence of intoxicating substances
- persons with criminal intent
- persons, vehicles and equipment in unsuitable locations


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- property or people
- security systems
- suspicious packages or substances
- systems or process failures
- terrorism
- violence or physical threats.

***Roles and responsibilities may relate to***:

- administrative support
- backup operational role
- decision-making
- frontline role
- team leadership
- team membership.

***Relevant persons may include***:

- client
- colleagues
- human resources personnel
- management
- security personnel.

***Activities may include***:

- advising
- field work
- monitoring
- organising
- report preparation
- reporting.

***Resources, equipment and materials may relate to***:

- consumables
- equipment
- funding
- personnel
- time
- vehicles.

***Treatment options* may relate to**:

- controlled interruptions to normal operations
- exercises
- information collation and analysis
- simulations
- surveillance
- verification requirements.

***Targets and outcomes* may relate to**:

- client support times
- effective security risk management
- incident reports
- level of feedback from clients
- number of new sales
- police liaison


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| | |
|---|---|
| ***Project aims* may relate to**: | • response times.<br>• key outcomes<br>• milestones<br>• personnel involvement<br>• resources<br>• tasks<br>• timelines. |

## Unit Sector(s)

**Unit sector** Security

## Competency field

**Competency field** Security and risk management


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# CPPSEC5006A Determine strategy for the implementation of biometric technology

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit of competency specifies the outcomes required to determine requirements and processes for the strategic implementation of biometric technology in the workplace.

It requires the ability to determine security and biometric technology requirements, design treatment options and develop an implementation strategy for the integration of a biometrics system.

An understanding of the operating principles of biometric systems including software, hardware and acquisition devices is also required as well as the ability to interpret and apply effective principles and requirements relating to confidentiality, privacy and security in own work.

This unit may form part of the licensing requirements for persons engaged in security operations involving biometric technology in those states and territories where these are regulated activities.

## Application of the Unit

**Application of the unit**

This unit of competency has application in those roles involving determining requirements for biometric technology in the workplace to maintain security. Competency requires legal and operational knowledge applicable to relevant sectors of the security industry. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.



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# Licensing/Regulatory Information

Refer to Unit Descriptor

# Pre-Requisites

Not Applicable

# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **1 Determine security requirements**. | 1.1 Applicable ***Occupational Health and Safety*** (***OHS***), ***legislative*** and ***organisational requirements*** relevant to workplace ***biometric technology*** are identified and complied with.<br>1.2 Relevant ***privacy legislation*** and codes of ethics relevant to the workplace application of biometric technology are accessed and interpreted.<br>1.3 Reliability and effectiveness of organisational ***security safeguards*** are evaluated.<br>1.4 ***Threats*** to organisational physical and technical security are identified.<br>1.5 ***Risks*** are identified and risk levels established and prioritised.<br>1.6 Effective ***communication*** and ***interpersonal techniques*** are used that reflect sensitivity to individual ***social and*** |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | ***cultural differences***. |
| | 1.7 Specialist assistance to examine and assess security requirements is sought as required in accordance with organisational requirements. |
| **2 Determine requirements for implementing biometric technology**. | 2.1 Legislative and regulatory requirements applicable to the use of biometric technology are confirmed. |
| | 2.2 ***Options*** for single or ***multiple*** biometric technology are determined. |
| | 2.3 Physical and technical specifications of ***biometric equipment and systems*** to be installed are determined. |
| | 2.4 Workspace requirements are identified and locations determined. |
| | 2.5 ***Resources***, skills and training requirements for the implementation of biometric technology are determined. |
| | 2.6 ***Existing architecture*** is assessed for effective integration with biometric technology and ***additional requirements*** determined. |
| **3 Design implementation options**. | 3.1 Implementation options are selected in accordance with industry practices and organisational policies and procedures. |
| | 3.2 Implementation options are ***feasible*** and verifiable in accordance with organisational requirements. |
| | 3.3 Implementation options are in compliance with time schedules, available resources and budgetary guidelines. |
| | 3.4 Implementation options take into account organisational risk assessment and security requirements. |
| | 3.5 Implementation options are effective and applicable in the workplace. |
| **4 Develop an implementation strategy**. | 4.1 All ***relevant information*** is collated, documented and presented in an ***appropriate format*** in accordance with organisational requirements. |
| | 4.2 ***Implementation strategy*** is developed in accordance with organisational requirements. |
| | 4.3 Strategy incorporates ***contingencies*** and allows for continuous improvement planning. |
| | 4.4 Strategy is presented to ***relevant persons*** and feedback is sought and used to evaluate and refine strategy. |
| | 4.5 ***Records and reports*** are completed and maintained in accordance with legislative and organisational requirements. |


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# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

### Required skills

- accurately and securely maintain records, reports and other workplace information
- analyse organisational security plans, goals, objectives and existing safeguards
- coaching and mentoring to provide support to colleagues
- comply with applicable confidentiality and privacy requirements
- comply with legislation, regulations, standards, codes of practice relevant to workplace biometric technology
- conduct and evaluate risk and threat assessments
- design effective treatment options
- determine biometric technology and system requirements, including single or multiple biometrics applications
- determine resources including personnel, tools and equipment
- determine security requirements
- make effective decisions
- plan for contingencies
- read and interpret technical information including plans, designs and specifications
- relate effectively to people from a range of social, cultural and ethnic backgrounds and varying physical and mental abilities
- research and analyse data and specifications
- resolve problems
- select and use equipment and technology appropriate to the work task
- undertake effective enrolment of biometric and biographical data
- use appropriate communication and interpersonal skills including negotiation
- written communication skills sufficient to complete relevant records and reports.

### Required knowledge

- accuracy metrics and ratios according to risk tolerance
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice relevant to the full range of processes relating to workplace biometric technology
- appropriate mathematical procedures for estimating, measuring and calculating
- biometric technology installation and implementation processes, procedures and requirements
- ergonomic and safe working practices and procedures
- established threshold levels and their impact on security
- feasibility and cost-benefit analysis techniques


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### REQUIRED SKILLS AND KNOWLEDGE

- initial enrolment processes
- management of enrolment data
- operating systems and integration application requirements
- operational principles of information technology
- organisational procedures for recording, reporting and maintaining workplace information
- organisational security plans, goals and objectives
- organisational standards, requirements, policies and procedures for the use of biometric technology
- principles of cultural diversity and access and equity
- privacy and ethics issues associated with biometric technology
- product options for various biometric systems
- risk, threats and vulnerabilities associated with biometric technology
- security and risk assessment and management techniques and processes
- types, functions and parameters of biometric technology including software, hardware and acquisition devices
- workplace communication channels, protocols and procedures.

# Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

A person who demonstrates competency in this unit must be able to provide evidence of:

- accurately estimating resources to support implementation strategy and determining roles, responsibilities and work schedules
- complying with applicable legislation and codes of ethics applicable to privacy and client confidentiality
- complying with organisational policies and procedures, including OHS, relevant to biometric work tasks
- designing treatment options which are compatible with assessed risk and security requirements
- determining biometric technology requirements based on an accurate evaluation of existing security controls, assets, and potential risks and threats


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- developing an effective strategy which incorporates the implementation of treatment options, contingency arrangements, and resources for the effective implementation of biometric technology in a workplace environment.

**Context of and specific resources for assessment**

Context of assessment includes:

- a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.

Resource implications for assessment include:

- access to a registered provider of assessment services
- access to a suitable venue and equipment
- access to plain English version of relevant statutes and procedures
- assessment instruments including personal planner and assessment record book
- work schedules, organisational policies and duty statements.

Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

**Method of assessment**

This unit of competency could be assessed using the following methods of assessment:

- observation of processes and procedures
- questioning of underpinning knowledge and skills.

**Guidance information for assessment**

Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.

Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.

Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff.



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# Range Statement

## RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Occupational Health and Safety*** **(*OHS*) *requirements may relate to***:

- controlling and minimising risks
- correct manual handling including shifting, lifting and carrying
- elimination of hazardous materials and substances
- identifying hazards
- safe use and operation of equipment including
  - business technology
  - first aid equipment
  - fire safety equipment
  - personal protective clothing and equipment
  - safety equipment
- safety procedures for the protection of self and others.

***Legislative requirements may relate to***:

- Australian standards and quality assurance requirements
- award and enterprise agreements
- Compliance Policy Guidelines (CPGs)
- counter-terrorism
- general 'duty of care' responsibilities
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state and territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - OHS
- relevant industry codes of practice
- telecommunications.

***Organisational requirements may relate to***:

- access and equity policies, principles and practices
- business and performance plans
- client service standards


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- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures
- emergency and evacuation procedures
- employer and employee rights and responsibilities
- environmental management including waste disposal, recycling and re-use guidelines
- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes and standards
- resource parameters and procedures
- roles, functions and responsibilities of security personnel
- standard operating procedures
- storage and disposal of information
- use and maintenance of equipment and systems.

***Biometric refers to***:

- a measurable physical characteristic or personal behavioural trait used to recognise the identity or verify the identity of an individual.

***Biometric technologies include***:

- facial recognition
- fingerprint recognition
- hand geometry
- iris recognition
- retina recognition
- signature recognition
- vein recognition
- voice recognition.

***Privacy legislation may include***:

- Commonwealth, State and Territory Privacy Acts
- national information privacy principles
- national privacy principles.

***Security safeguards may be***:

- administrative and include:
  - contingency plans (data back-up, disaster recovery, and emergency mode operation plans)
  - information access management (access authorisation, establishment and modification)
  - security awareness and training (awareness, virus protection, log-in success or failure, password management)
  - security incident procedures (report and response procedures)


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| | |
|---|---|
| | • security management (risk analysis and management)<br>• physical and include measures to protect information systems, buildings and equipment from natural and environmental hazards and unauthorised intrusions<br>• technical and include:<br>  • access control (user identification, emergency access procedures, automatic log-off, encryption and decryption)<br>  • audit control (logging, capturing data versions, times, sessions, workstations, events and user information)<br>  • transmission security (integrity controls, encryption). |
| ***Threats***: | • are intentional or unintentional potential events that could compromise the security integrity of physical and technical organisational systems. |
| ***Risk* relates to**: | • the chance of something happening that will have an impact on objectives. |
| ***Risks* may relate to**: | • data and information<br>• personnel<br>• property. |
| ***Communication may be***: | • face-to-face<br>• group interaction<br>• in Indigenous languages<br>• in languages other than English<br>• oral reporting<br>• participation in routine meetings<br>• reading independently<br>• recording of discussions<br>• speaking clearly and directly<br>• through the use of assistive technology<br>• via an interpreter<br>• visual or written<br>• writing to audience needs. |
| ***Interpersonal techniques may involve***: | • active listening<br>• being non-judgemental<br>• being respectful and non-discriminatory<br>• constructive feedback<br>• control of tone of voice and body language<br>• culturally aware and sensitive use of language and concepts<br>• demonstrating flexibility and willingness to negotiate<br>• effective verbal and non-verbal communication<br>• maintaining professionalism |


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- providing sufficient time for questions and responses
- reflection and summarising
- two-way interaction
- use of plain English
- use of positive, confident and cooperative language.

***Social and cultural differences* may relate to**:

- dress and personal presentation
- food
- language
- religion
- social conventions
- traditional practices
- values and beliefs.

***Options* may relate to**:

- enrolment advice
- motivation to verify
- tolerance for rejected attempts.

***Multiple* biometrics refers to**:

- a biometric system that integrates two ore more biometric technologies (facial and iris recognition, and multiple instances of a single biometric eg one, two or ten fingerprints).

***Biometric equipment and systems are***:

- automated systems able to capture a biometric sample from an individual person, extract biometric data from the sample, compare the data with one or more reference templates, determine the quality of a match, and indicate whether or not an identification or verification of identity has been achieved.

***Biometric equipment and systems may include***:

- acquisition devices:
  - cameras (video, infrared-enabled video, single-image)
  - chip or reader embedded in peripheral device
  - microphones
  - optical scanners
- biometric servers
- hardware
- interconnecting infrastructure
- software:
  - server-based authentication software for biometric authentication and logging
  - software associated with acquisition devices.

***Resource requirements may include***:

- computer systems (hardware, software and infrastructure)
- equipment
- funding
- personnel
- time


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| | |
|---|---|
| | • tools. |
| ***Existing architecture* may include**: | • desktop PCs<br>• local area networks (LANs)<br>• mainframe systems<br>• servers<br>• websites<br>• wide area networks (WANs). |
| ***Additional requirements* may relate to**: | • integration service requirements and interoperability<br>• upgrading or replacing the system or components of the system. |
| ***Feasibility* may relate to**: | • economic and schedule feasibility<br>• operational feasibility<br>• technical feasibility. |
| ***Relevant information* may include**: | • assets (resources, data and information)<br>• contingency plans<br>• implementation issues<br>• resource requirements including allocation and location<br>• risk and threat assessment outcomes<br>• treatment options. |
| ***Appropriate format may include***: | • formats that cater for those with special needs for example, producing documents in large print. |
| ***Implementation strategy may include***: | • analysis and comparison of biometrics system options<br>• assessment of security risks<br>• enrolment processes<br>• integration requirement and system interoperability<br>• resources necessary for implementation<br>• staged rollouts. |
| ***Contingencies may detail***: | • roles, responsibilities, teams and procedures associated with restoring a security system following a disruption<br>• side manual door entry. |
| ***Relevant persons* may include**: | • biometric technology specialists<br>• clients<br>• colleagues<br>• external consultants<br>• information technology specialists<br>• manager. |
| ***Records and reports***: | • may be:<br>  • computer-based<br>  • manual<br>  • other appropriate organisational communication |


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system
- may detail:
  - biometric technologies and systems
  - organisational security requirements
  - resources requirements
  - risk assessment outcomes
  - technical data and specifications
  - timeframe and financial considerations.

## Unit Sector(s)

**Unit sector** Security

## Competency field

**Competency field** Biometrics


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# CPPSEC5007A Assess biometric system

## Modification History

Not Applicable

## Unit Descriptor

**Unit descriptor**

This unit of competency specifies the outcomes required to conduct an assessment of the application and operations of biometric technologies and systems in a workplace environment.

It requires the ability to determine security arrangements and requirements, measure and assess the operation, application and outcomes of biometric technologies and systems in terms of efficiency and effectiveness. It also involves the preparation and presentation of assessment results.

An understanding of the operating principles of biometric systems including software, hardware and acquisition devices, and principles of measurement and assessment are also required as well as the ability to interpret and apply effective principles and requirements relating to confidentiality, privacy and security in own work.

This unit may form part of the licensing requirements for persons engaged in security operations involving biometric technology in those states and territories where these are regulated activities.

## Application of the Unit

**Application of the unit**

This unit of competency has application in those roles involving the assessment of biometric technologies and systems in the workplace. Competency requires legal and operational knowledge applicable to relevant sectors of the security industry. The knowledge and skills described in this unit are to be applied within relevant legislative and organisational guidelines.



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# Licensing/Regulatory Information

Refer to Unit Descriptor

# Pre-Requisites

Not Applicable

# Employability Skills Information

**Employability skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge section and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **1 Plan for assessment**. | 1.1 Applicable ***Occupational Health and Safety*** (***OHS***), ***legislative*** and ***organisational requirements*** relevant to ***biometric technologies and systems*** are confirmed.<br>1.2 Relevant ***privacy legislation*** and codes of ethics relevant to the workplace application of biometric technology are accessed and interpreted.<br>1.3 Context and purpose of assessment is determined and clarified with ***relevant persons*** as required.<br>1.4 Organisational ***security requirements*** are determined.<br>1.5 Resources relevant to assessment activities are determined and organised in accordance with workplace procedures.<br>1.6 ***Assessment plan*** is constructed in accordance with client requirements and workplace procedures. |
| **2 Conduct assessment**. | 2.1 Effective ***communication*** and ***interpersonal techniques*** are used that reflect sensitivity to individual ***social and*** |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | ***cultural differences***. |
| | 2.2 Integration of biometric systems with ***existing architecture*** is assessed. |
| | 2.3 Operational functions of biometric technologies and systems are assessed. |
| | 2.4 Application of single or ***multiple*** biometric technologies are assessed. |
| | 2.5 Data and information is assessed and errors or deficiencies identified. |
| | 2.6 Skills and training requirements for the use, operation and maintenance of biometric systems are determined. |
| **3 Complete assessment**. | 3.1 Assessment results are analysed, accurately documented and prepared in an ***appropriate format*** in accordance with organisational requirements. |
| | 3.2 Findings are presented to relevant persons in accordance with workplace procedures. |
| | 3.3 Findings are supported by verifiable evidence in accordance with organisational requirements. |
| | 3.4 Feedback is sought, received and used in a constructive manner. |
| | 3.5 Recommendations or identified opportunities for ***system improvements*** are forwarded to relevant persons to inform future practice. |
| | 3.6 ***Records and reports*** are completed and maintained in accordance with legislative and organisational requirements. |

# Required Skills and Knowledge

## REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge and their level required for this unit.

### Required skills

- accurately and securely maintain records, reports and other workplace information
- analyse organisational security plans, goals, objectives and existing safeguards
- assess data and information and identify errors or deficiencies
- assess the application, operation and outcomes of biometric technologies and systems
- coaching and mentoring to provide support to colleagues


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## REQUIRED SKILLS AND KNOWLEDGE

- comply with applicable confidentiality and privacy requirements
- comply with legislation, regulations, standards, codes of practice relevant to workplace biometric systems
- conduct and evaluate risk and threat assessments
- conduct contingency planning
- design effective treatment options
- determine biometric technology and system requirements, including single or multiple biometric applications
- determine resource requirements including personnel, tools and equipment
- determine security requirements
- determine skills and training requirements
- make effective decisions
- read and interpret technical information including plans, designs and specifications
- relate effectively to people from a range of social, cultural and ethnic backgrounds and varying physical and mental abilities
- resolve problems
- select and use equipment and technology appropriate to the work task
- undertake effective enrolment of biometric and biographical data
- use appropriate communication and interpersonal skills including negotiation.
- written communication skills sufficient to complete relevant records and reports
- written communication skills sufficient to write assessment plan, document assessment results and complete relevant records and reports.

### Required knowledge

- accuracy metrics and ratios according to risk tolerance
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice relevant to the full range of processes relating to workplace biometric systems
- appropriate mathematical procedures for estimating, measuring and calculating
- assessment methods and techniques
- biometric technology and systems installation and implementation processes, procedures and requirements
- ergonomic and safe working practices and procedures
- established threshold levels and their impact on security
- feasibility and cost-benefit analysis techniques
- initial enrolment processes
- management of enrolment data
- operating systems and integration application requirements
- operational principles of information technology
- organisational procedures for recording, reporting and maintaining workplace information
- organisational security plans, goals and objectives


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### REQUIRED SKILLS AND KNOWLEDGE

- organisational standards, requirements, policies and procedures for the use of biometric systems
- principles of cultural diversity and access and equity
- privacy and ethics issues associated with biometric systems
- problem identification and resolution procedures
- product options for various biometric systems
- risk, threats and vulnerabilities associated with biometric technology
- security and risk assessment and management techniques and processes
- types, functions and parameters of biometric systems including software, hardware and acquisition devices
- workplace communication channels, protocols and procedures.

# Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

| | |
|---|---|
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | A person who demonstrates competency in this unit must be able to provide evidence of:<br>• complying with applicable legislation and codes of ethics applicable to privacy and client confidentiality<br>• complying with organisational policies and procedures, including OHS, relevant to biometric work tasks<br>• determining security requirements based on an accurate assessment of existing security controls, assets, and existing and potential risks and threats<br>• determining skill and training requirements to support the application of biometric technologies and systems<br>• efficiently and effectively assessing the application, operation and outcomes of biometric technologies and systems, including an accurate assessment of data and information<br>• establishing purpose and context of assessment and plan, organising and coordinating assessment activities<br>• preparing and presenting assessment findings, seeking and reviewing feedback, and recommending opportunities for improvement to inform future practices. |
| **Context of and specific** | Context of assessment includes: |


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| | |
|---|---|
| **resources for assessment** | • a setting in the workplace or environment that simulates the conditions of performance described in the elements, performance criteria and range statement.<br><br>Resource implications for assessment include:<br><br>• access to a registered provider of assessment services<br>• access to a suitable venue and equipment<br>• access to plain English version of relevant statutes and procedures<br>• assessment instruments including personal planner and assessment record book<br>• work schedules, organisational policies and duty statements.<br><br>Reasonable adjustments must be made to assessment processes where required for people with disabilities. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support. |
| **Method of assessment** | This unit of competency could be assessed using the following methods of assessment:<br><br>• observation of processes and procedures<br>• questioning of underpinning knowledge and skills. |
| **Guidance information for assessment** | Assessment processes and techniques must be culturally appropriate and suitable to the language, literacy and numeracy capacity of the candidate and the competency being assessed. In all cases where practical assessment is used, it should be combined with targeted questioning to assess the underpinning knowledge.<br><br>Oral questioning or written assessment may be used to assess underpinning knowledge. In assessment situations where the candidate is offered a choice between oral questioning and written assessment, questions are to be identical.<br><br>Supplementary evidence may be obtained from relevant authenticated correspondence from existing supervisors, team leaders or specialist training staff. |

# Range Statement

## RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work


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situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Occupational Health and Safety* (*OHS*) *requirements may relate to***:

- controlling and minimising risks
- correct manual handling including shifting, lifting and carrying
- elimination of hazardous materials and substances
- identifying hazards
- safe use and operation of equipment including
  - business technology
  - first aid equipment
  - fire safety equipment
  - personal protective clothing and equipment
  - safety equipment
- safety procedures for the protection of self and others.

***Legislative requirements may relate to***:

- Australian standards and quality assurance requirements
- award and enterprise agreements
- Compliance Policy Guidelines (CPGs)
- counter-terrorism
- general 'duty of care' responsibilities
- licensing or certification requirements
- privacy and confidentiality
- relevant commonwealth, state and territory legislation, codes and national standards for:
  - anti-discrimination
  - cultural and ethnic diversity
  - environmental issues
  - equal employment opportunity
  - industrial relations
  - OHS
- relevant industry codes of practice
- telecommunications.

***Organisational requirements may relate to***:

- access and equity policies, principles and practices
- business and performance plans
- client service standards
- code of conduct, code of ethics
- communication and reporting procedures
- complaint and dispute resolution procedures
- emergency and evacuation procedures
- employer and employee rights and responsibilities
- environmental management including waste disposal, recycling and re-use guidelines


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- OHS policies, procedures and programs
- own role, responsibility and authority
- personal and professional development
- privacy and confidentiality of information
- quality assurance and continuous improvement processes and standards
- resource parameters and procedures
- roles, functions and responsibilities of security personnel
- standard operating procedures
- storage and disposal of information
- use and maintenance of equipment and systems.

***Biometric refers to***:

- a measurable physical characteristic or personal behavioural trait used to recognise the identity or verify the identity of an individual.

***Biometric technologies include***:

- facial recognition
- fingerprint recognition
- hand geometry
- iris recognition
- retina recognition
- signature recognition
- vein recognition
- voice recognition.

***Biometric systems are***:

- automated systems able to capture a biometric sample from an individual person, extract biometric data from the sample, compare the data with one or more reference templates, determine the quality of a match, and indicate whether or not an identification or verification of identity has been achieved.

***Biometric systems may include***:

- acquisition devices
  - cameras (video, infrared-enabled video, single-image)
  - chip or reader embedded in peripheral device
  - microphones
  - optical scanners
- biometric servers
- hardware
- interconnecting infrastructure
- software
  - server-based authentication software for biometric authentication and logging
  - software associated with acquisition devices.

***Privacy legislation may include***:

- Commonwealth, State and Territory Privacy Acts
- national information privacy principles


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- national privacy principles.

***Relevant persons* may include**:

- biometric technology specialists
- clients
- colleagues
- external consultants
- information technology specialists
- manager.

***Security requirements may be***:

- risk and threat assessments
  - auditability
  - authentication
  - integrity
  - privacy protection
  - recovery
- security objectives
  - auditability
  - authentication
  - integrity
  - privacy protection
  - recovery
- security safeguards
  - administrative (licensing, authorisations, contingency plans, information access management, security incident procedures, security management, security awareness and training)
  - physical (include measures to protect information systems, buildings and equipment from natural and environmental hazards and unauthorised intrusions)
  - technical (access control, audit control, transmission security).

***Assessment plan* may include**:

- enrolment requirements
- level of assessment
- measurement and testing details and methods
- necessary resources (eg number of tests)
- privacy and ethics requirements
- timelines.

***Communication may be***:

- face-to-face
- group interaction
- in Indigenous languages
- in languages other than English
- oral reporting
- participation in routine meetings


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- reading independently
- recording of discussions
- speaking clearly and directly
- through the use of assistive technology
- via an interpreter
- visual or written
- writing to audience needs.

***Interpersonal techniques may involve***:

- active listening
- being non-judgemental
- being respectful and non-discriminatory
- constructive feedback
- control of tone of voice and body language
- culturally aware and sensitive use of language and concepts
- demonstrating flexibility and willingness to negotiate
- effective verbal and non-verbal communication
- maintaining professionalism
- providing sufficient time for questions and responses
- reflection and summarising
- two-way interaction
- use of plain English
- use of positive, confident and cooperative language.

***Social and cultural differences* may relate to**:

- dress and personal presentation
- food
- language
- religion
- social conventions
- traditional practices
- values and beliefs.

***Existing architecture* may include**:

- desktop PCs
- local area networks (LANs)
- mainframe systems
- servers
- websites
- wide area networks (WANs).

***Multiple* biometrics refers to**:

- a biometric system that integrates two ore more biometric technologies (facial and iris recognition, and multiple instances of a single biometric eg one, two or ten fingerprints).

***Appropriate format may include***:

- formats that cater for those with special needs for example, producing documents in large print.


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| | |
|---|---|
| ***System improvements* may relate to**: | • backup systems<br>• changes to biometrics settings<br>• contingency plans<br>• threshold levels. |
| ***Records and reports***: | • may be:<br>  • computer-based<br>  • manual<br>  • other appropriate organisational communication system<br>• may detail:<br>  • applications of biometric technologies and systems<br>  • functional operations of biometric technologies and systems<br>  • resource requirements<br>  • risk and threat assessments<br>  • security arrangements and additional requirements. |

# Unit Sector(s)

**Unit sector** Security

# Competency field

**Competency field** Biometrics


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# FNSORG506 Prepare financial forecasts and projections

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with FNS Financial Services Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to plan a financial forecast or projection, identify assumptions and parameters, collect, consolidate and analyse data, make forecasts or projections, document results and obtain approval.

It applies to experienced individuals who use a range of specialist and managerial techniques to plan and carry out their work, and provide direction to others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Organisational skills

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1. Plan preparation timetable | 1.1 Identify all critical milestones to ensure financial forecasts and projections can be prepared within timeframes<br>1.2 Review business plans, financial forecasting and processing systems to identify timeframes and parameters, and any potential conflicts |
| 2. Identify assumptions and parameters | 2.1 Review business plans and exception reports to identify and resolve conflicts in assumptions |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 2.2 Review assumptions and parameters to ensure compliance with organisational policy and procedures<br>2.3 Analyse current and historical financial reports to establish trends, and examine external environment to gain objective overview |
| 3. Issue instructions and relevant aids for preparation of forecasts and projections | 3.1 Issue clear instructions that comply with organisational format to facilitate use and ensure consistent interpretation<br>3.2 Identify business types to enable selection of effective financial models, and provide training to users to ensure comprehensive understanding and effective use of models |
| 4. Collect, consolidate, model and analyse data | 4.1 Review data to ensure consistency with model used and document analysis results clearly<br>4.2 Collect reliable, valid, complete and comprehensive data<br>4.3 Process and consolidate data in logical structured format that enables ready analysis according to established timetable |
| 5. Document results and obtain approval | 5.1 Document results clearly in suitable format that meets needs of target users<br>5.2 Obtain all approvals in accordance with management objectives and financial and organisational policy, and distribute results within timetable |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.2, 2.1-2.3, 4.1-4.3, 5.2 | • Interprets, analyses and reviews a variety of structurally complex textual information for accuracy, consistency and compliance with legislation and organisational requirements |
| Writing | 2.1, 3.1, 3.2, 4.1-4.3, 5.1, 5.2 | • Produces analytical financial reports from an extensive range of data and modelling to clearly and accurately convey forecasts and projections in required formats<br>• Develops content using clear and detailed language organised in a manner that supports the purposes and audience of the document |


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| | | |
|---|---|---|
| Oral Communication | 1.1, 1.2, 2.1, 2.2, 3.1, 3.2 | • Participates in verbal exchanges using careful listening and questioning techniques to elicit relevant information from others, and clear and direct language to convey instructions and confirm understanding<br>• Uses language, tone and pace appropriate to the audience and environment |
| Numeracy | 1.1, 2.1-2.3, 3.2, 4.1-4.3, 5.1 | • Collects, analyses and reviews relevant numerically expressed data, formulae and ratios from a range of sources<br>• Uses advanced mathematical skills to identify assumptions and inconsistencies, and complete accurate result analysis<br>• Performs calculations necessary to estimate timelines and prepare accurate timetables |
| Navigate the world of work | 2.2, 2.3, 3.2, 5.2 | • Takes full responsibility for understanding and complying with organisational policy and procedures regarding financial forecasts and projections<br>• Maintains and updates knowledge required to carry out work role |
| Interact with others | 3.2 | • Selects and uses appropriate conventions and protocols to gain and elicit information relevant to financial forecasts and projections |
| Get the work done | 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 4.1-4.3, 5.1, 5.2 | • Accepts responsibility for planning, sequencing and scheduling complex tasks and workload according to organisational requirements<br>• Applies systematic and analytical decision-making processes to make forecasts and projections in complex and non-routine situations<br>• Uses formal analytical thinking techniques to identify issues and generate possible solutions<br>• Uses the main features and functions of digital tools to complete work tasks, store data and access information |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| FNSORG506 Prepare financial forecasts and projections | FNSORG506A Prepare financial forecasts and projections | Updated to meet Standards for Training Packages.<br>Minor edits to clarify | Equivalent unit |


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| Code and title current version | Code and title previous version | Comments | Equivalence status |
|---|---|---|---|
| | | intent of performance criteria. | |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c7200cc8-0566-4f04-b76f-e89fd6f102fe


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# Assessment Requirements for FNSORG506 Prepare financial forecasts and projections

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with FNS Financial Services Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- comply with organisational policy and procedures that relate to the preparation of financial forecasts and projections
- apply standard accounting principles and techniques
- accurately identify assumptions and parameters of forecasts
- collect, consolidate, model and analyse data in a timely manner
- document forecasts and projections, and obtain approval where required.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe relevant financial industry codes of practice
- explain financial forecasting techniques, models and best practice
- identify key users or audience for financial forecasts and projections
- outline factors in the external environment that can impact on financial forecasts
- outline the relevance of historical financial reports to forecasting
- identify and interpret relevant organisational policy and procedures
- explain key requirements of relevant legislation and regulations that influence the financial services industry.

## Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the organisational skills field of work and include access to:


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- office equipment, technology, software and consumables
- an integrated financial software system and data
- organisational policy and procedures documentation.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c7200cc8-0566-4f04-b76f-e89fd6f102fe


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# HLTAID001 Provide cardiopulmonary resuscitation

## Modification History

| Release | Notes |
|---|---|
| Release 5 | Updated:<br>• assessor requirements statement<br>• foundation skills lead in statement<br>• licensing statement<br>• modification history to reflect 2012 standards<br>Equivalent outcome. |
| Release 4 | Updated mapping information. Changes to assessment requirements. Equivalent outcome. |
| Release 3 | Updated mapping information. Equivalent outcome. |
| Release 2 | Updated mapping information. Equivalent outcome. |
| Release 1 | This version was released in *HLT Health Training Package release 1.0* and meets the requirements of the 2012 Standards for Training Packages.<br>Significant changes to elements and performance criteria.<br>Revised evidence requirements, including volume and frequency of assessment. |

## Application

This unit describes the skills and knowledge required to perform cardiopulmonary resuscitation (CPR) in line with the Australian Resuscitation Council (ARC) Guidelines.

This unit applies to all workers who may be required to provide CPR, in a range of situations, including community and workplace settings.

*Specific licensing /regulatory requirements relating to this competency, including requirements for refresher training should be obtained from the relevant national/state/territory Work Health and Safety Regulatory Authorities.*


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# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements define the essential outcomes.* | *Performance criteria specify the level of performance needed to demonstrate achievement of the element.* |
| 1. Respond to an emergency situation | 1.1 Recognise an emergency situation<br>1.2 Identify, assess and minimise immediate hazards to health and safety of self and others<br>1.3 Assess the casualty and recognise the need for CPR<br>1.4 Seek assistance from emergency response services |
| 2. Perform CPR procedures | 2.1 Perform cardiopulmonary resuscitation in accordance with ARC guidelines<br>2.2 Display respectful behaviour towards casualty<br>2.3 Operate automated external defibrillator (AED) according to manufacturer's instructions |
| 3. Communicate details of the incident | 3.1 Accurately convey incident details to emergency response services<br>3.2 Report details of incident to workplace supervisor as appropriate<br>3.3 Maintain confidentiality of records and information in line with statutory and/or organisational policies |

# Foundation Skills

*The Foundation Skills describe those required skills (language, literacy, numeracy and employment skills) that are essential to performance.*

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.


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# Unit Mapping Information

No equivalent unit.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ced1390f-48d9-4ab0-bd50-b015e5485705


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# Assessment Requirements for HLTAID001 Provide cardiopulmonary resuscitation

## Modification History

| Release | Notes |
|---|---|
| Release 5 | Updated:<br>• assessor requirements statement<br>• foundation skills lead in statement<br>• licensing statement<br>• modification history to reflect 2012 standards<br>Equivalent outcome. |
| Release 4 | Updated mapping information. Changes to assessment requirements. Equivalent outcome. |
| Release 3 | Updated mapping information. Equivalent outcome. |
| Release 2 | Updated mapping information. Equivalent outcome. |
| Release 1 | This version was released in *HLT Health Training Package release 1.0* and meets the requirements of the 2012 Standards for Training Packages.<br>Significant changes to elements and performance criteria.<br>Revised evidence requirements, including volume and frequency of assessment. |

## Performance Evidence

The candidate must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the job role.

There must be evidence that the candidate has completed the following tasks in line with state/territory regulations, first aid codes of practice, Australian Resuscitation Council (ARC) guidelines and workplace procedures:

- Followed DRSABCD in line with ARC guidelines, including:
  - performed at least 2 minutes of uninterrupted single rescuer cardiopulmonary resuscitation (CPR) (5 cycles of both compressions and ventilations) on an adult resuscitation manikin placed on the floor


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  - performed at least 2 minutes of uninterrupted single rescuer CPR (5 cycles both compressions and ventilations) on an infant resuscitation manikin placed on a firm surface
  - responded appropriately in the event of regurgitation or vomiting
  - managed the unconscious breathing casualty
  - followed single rescue procedure, including the demonstration of a rotation of operators with minimal interruptions to compressions
  - followed the prompts of an automated external defibrillator (AED)
- Responded to at least one simulated first aid scenario contextualised to the candidate's workplace/community setting, including:
  - demonstrated safe manual handling techniques
  - provided an accurate verbal or written report of the incident

# Knowledge Evidence

The candidate must be able to demonstrate essential knowledge required to effectively complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the work role. This includes knowledge of:

- State/Territory regulations, first aid codes of practice and workplace procedures including:
  - ARC Guidelines relevant to the provision of CPR
  - safe work practices to minimise risks and potential hazards
  - infection control principles and procedures, including use of standard precautions
  - requirements for currency of skill and knowledge
- Legal, workplace and community considerations, including:
  - awareness of potential need for stress-management techniques and available support following an emergency situation
  - duty of care requirements
  - respectful behaviour towards a casualty
  - own skills and limitations
  - consent
  - privacy and confidentiality requirements
  - importance of debriefing
- Considerations when providing CPR, including:
  - airway obstruction due to body position
  - appropriate duration and cessation of CPR
  - appropriate use of an AED
  - chain of survival
  - standard precautions
- Basic anatomy and physiology relating to:
  - how to recognise a person is not breathing normally
  - chest


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- response/consciousness
- upper airway and effect of positional change

# Assessment Conditions

Skills must be demonstrated working individually in an environment that provides realistic in-depth, industry-validated scenarios and simulations to assess candidates' skills and knowledge.

Assessment resources must include:

- adult and infant resuscitation manikins in line with ARC Guidelines for the purpose of assessment of CPR procedures
- AED training device
- workplace injury, trauma and/or illness record, or other appropriate workplace incident report form

Simulated assessment environments must simulate the real-life working environment where these skills and knowledge would be performed, with all the relevant equipment and resources of that working environment.

### Assessor Requirements

Assessors must satisfy the Standards for Registered Training Organisations (RTOs) 2015/AQTF mandatory competency requirements for assessors.

In addition hold current first aid certificate HLTAID003 or higher.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ced1390f-48d9-4ab0-bd50-b015e5485705


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# HLTAID002 Provide basic emergency life support

## Modification History

| Release | Comments |
|---|---|
| Release 4 | Updated:<br>• assessor requirements statement<br>• foundation skills lead in statement<br>• licensing statement<br>• modification history to reflect 2012 standards<br>Equivalent outcome. |
| Release 3 | Updated mapping information. Changes to assessment requirements. Equivalent outcome. |
| Release 2 | Minor corrections to formatting to improve readability. Equivalent competency outcome. |
| Release 1 | This version was released in *HLT Health Training Package release 1.0* and meets the requirements of the 2012 Standards for Training Packages.<br>Significant changes to elements and performance criteria, changes to scope of unit. Changes to evidence requirements relative to revised scope of unit. |

## Application

This unit describes the skills and knowledge required to recognise and respond to life-threatening emergencies in line with the Australian Resuscitation Council (ARC) Guidelines.

This unit applies to all workers who may be required to provide an emergency response in a range of situations, including community and workplace settings.

*Specific licensing /regulatory requirements relating to this competency, including requirements for refresher training should be obtained from the relevant national/state/territory Work Health and Safety Regulatory Authorities.*


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# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements define the essential outcomes.* | *Performance criteria specify the level of performance needed to demonstrate achievement of the element.* |
| 1. Respond to an emergency situation | 1.1 Recognise an emergency situation<br>1.2 Identify, assess and minimise immediate hazards to health and safety of self and others<br>1.3 Assess the casualty and recognise the need for first aid response<br>1.4 Assess the situation and seek assistance from emergency response services |
| 2. Apply appropriate first aid procedures | 2.1 Perform cardiopulmonary resuscitation (CPR) in accordance with ARC guidelines<br>2.2 Provide first aid in accordance with established first aid principles<br>2.3 Display respectful behaviour towards casualty<br>2.4 Obtain consent from casualty where possible<br>2.5 Use available resources and equipment to make the casualty as comfortable as possible<br>2.6 Operate first aid equipment according to manufacturer’s instructions<br>2.7 Monitor the casualty’s condition and respond in accordance with first aid principles |
| 3. Communicate details of the incident | 3.1 Accurately convey incident details to emergency response services<br>3.2 Report details of incident to workplace supervisor as appropriate<br>3.3 Maintain confidentiality of records and information in line with statutory and/or organisational policies |


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# Foundation Skills

*The Foundation Skills describe those required skills (language, literacy, numeracy and employment skills) that are essential to performance.*

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

# Unit Mapping Information

No equivalent unit.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ced1390f-48d9-4ab0-bd50-b015e5485705


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# Assessment Requirements for HLTAID002 Provide basic emergency life support

## Modification History

| Release | Comments |
|---|---|
| Release 4 | Updated:<br>• assessor requirements statement<br>• foundation skills lead in statement<br>• licensing statement<br>• modification history to reflect 2012 standards<br>Equivalent outcome. |
| Release 3 | Updated mapping information. Changes to assessment requirements. Equivalent outcome. |
| Release 2 | Minor corrections to formatting to improve readability. Equivalent competency outcome. |
| Release 1 | This version was released in *HLT Health Training Package release 1.0* and meets the requirements of the 2012 Standards for Training Packages.<br>Significant changes to elements and performance criteria, changes to scope of unit. Changes to evidence requirements relative to revised scope of unit. |

## Performance Evidence

The candidate must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the job role.

There must be evidence that the candidate has completed the following tasks in line with state/territory regulations, first aid codes of practice, Australian Resuscitation Council (ARC) guidelines and workplace procedures:

- Followed DRSABCD in line with ARC guidelines, including:
  - performed at least 2 minutes of uninterrupted single rescuer cardiopulmonary resuscitation (CPR) (5 cycles of both compressions and ventilations) on an adult resuscitation manikin placed on the floor


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    - performed at least 2 minutes of uninterrupted single rescuer CPR (5 cycles both compressions and ventilations) on an infant resuscitation manikin placed on a firm surface
    - responded appropriately in the event of regurgitation or vomiting
    - managed the unconscious breathing casualty
    - followed single rescue procedure, including the demonstration of a rotation of operators with minimal interruptions to compressions
    - followed the prompts of an Automated External Defibrillator (AED)
- Responded to at least one simulated first aid scenario contextualised to the candidate's workplace/community setting, including:
    - demonstrated safe manual handling techniques
    - provided an accurate verbal or written report of the incident
- Applied first aid procedures for the following:
    - allergic reaction
    - anaphylaxis
    - bleeding control
    - choking and airway obstruction
    - respiratory distress, including asthma
    - shock

# Knowledge Evidence

The candidate must be able to demonstrate essential knowledge required to effectively complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the work role. This includes knowledge of:

- State/Territory regulations, first aid codes of practice and workplace procedures including:
    - ARC Guidelines relevant to provision of CPR and first aid
    - safe work practices to minimise risks and potential hazards
    - Infection control principles and procedures, including use of standard precautions
    - requirements for currency of skill and knowledge
- legal, workplace and community considerations, including:
    - awareness of potential need for stress-management techniques and available support following an emergency situation
    - duty of care requirements
    - respectful behaviour towards a casualty
    - own skills and limitations
    - consent
    - privacy and confidentiality requirements
    - importance of debriefing
- considerations when providing basic emergency life support, including:
    - airway obstruction due to body position


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  - appropriate duration and cessation of CPR
  - appropriate use of an AED
  - chain of survival
  - standard precautions
- principles and procedures for first aid management of the following scenarios:
  - allergic reaction
  - anaphylaxis
  - bleeding control
  - cardiac conditions, including chest pain
  - chocking and airway obstruction
  - respiratory distress, including asthma
  - shock
  - stroke
- basic anatomy and physiology relating to:
  - considerations in provision of first aid for specified conditions
  - chest
  - how to recognise a person is not breathing normally
  - response/consciousness
  - upper airway and effect of positional change

# Assessment Conditions

Skills must be demonstrated working individually in an environment that provides realistic in-depth, industry-validated scenarios and simulations to assess candidates' skills and knowledge.

Assessment resources must include:

- adult and infant resuscitation manikins in line with ARC Guidelines for the purpose of assessment of CPR procedures
- adrenaline auto-injector training device
- AED training device
- placebo bronchodilator and spacer device
- roller bandages
- triangular bandage
- workplace First Aid kit
- workplace injury, trauma and/or illness record, or other appropriate workplace incident report form
- wound dressing


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Simulated assessment environments must simulate the real-life working environment where these skills and knowledge would be performed, with all the relevant equipment and resources of that working environment.

### Assessor requirements

Assessors must satisfy the Standards for Registered Training Organisations (RTOs) 2015/AQTF mandatory competency requirements for assessors.

In addition hold current first aid certificate HLTAID003 or higher.

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ced1390f-48d9-4ab0-bd50-b015e5485705


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# HLTAID003 Provide first aid

## Modification History

| Release | Comments |
|---|---|
| Release 6 | Updated:<br>• assessor requirements statement<br>• foundation skills lead in statement<br>• licensing statement<br>• modification history to reflect 2012 standards<br>Equivalent outcome. |
| Release 5 | Updated mapping information. Changes to assessment requirements. Equivalent outcome. |
| Release 4 | Updated mapping information. Equivalent outcome. |
| Release 3 | Updated mapping information. |
| Release 2 | Minor corrections to formatting to improve readability. Equivalent competency outcome. |
| Release 1 | This version was released in *HLT Health Training Package release 1.0* and meets the requirements of the 2012 Standards for Training Packages.<br>Significant changes to elements and performance criteria, changes to scope of unit. New evidence requirements for assessment.<br>Removal of prerequisite unit. |

## Application

This unit describes the skills and knowledge required to provide a first aid response to a casualty. The unit applies to all workers who may be required to provide a first aid response in a range of situations, including community and workplace settings.

*Specific licensing /regulatory requirements relating to this competency, including requirements for refresher training should be obtained from the relevant national/state/territory Work Health and Safety Regulatory Authorities.*


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# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements define the essential outcomes.* | *Performance criteria specify the level of performance needed to demonstrate achievement of the element.* |
| 1. Respond to an emergency situation | 1.1 Recognise an emergency situation<br>1.2 Identify, assess and manage immediate hazards to health and safety of self and others<br>1.3 Assess the casualty and recognise the need for first aid response<br>1.4 Assess the situation and seek assistance from emergency response services |
| 2. Apply appropriate first aid procedures | 2.1 Perform cardiopulmonary resuscitation (CPR) in accordance with Australian Resuscitation Council (ARC) guidelines<br>2.2 Provide first aid in accordance with established first aid principles<br>2.3 Display respectful behaviour towards casualty<br>2.4 Obtain consent from casualty where possible<br>2.5 Use available resources and equipment to make the casualty as comfortable as possible<br>2.6 Operate first aid equipment according to manufacturer's instructions<br>2.7 Monitor the casualty's condition and respond in accordance with first aid principles |
| 3. Communicate details of the incident | 3.1 Accurately convey incident details to emergency response services<br>3.2 Report details of incident to workplace supervisor as appropriate<br>3.3 Maintain confidentiality of records and information in line with statutory and/or organisational policies |


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| ELEMENT | PERFORMANCE CRITERIA |
| --- | --- |
| *Elements define the essential outcomes.* | *Performance criteria specify the level of performance needed to demonstrate achievement of the element.* |
| 4. Evaluate the incident and own performance | 4.1 Recognise the possible psychological impacts on self and other rescuers involved in critical incidents<br>4.2 Participate in debriefing to address individual needs |

# Foundation Skills

*The Foundation Skills describe those required skills (language, literacy, numeracy and employment skills) that are essential to performance.*

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

# Unit Mapping Information

No equivalent unit.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ced1390f-48d9-4ab0-bd50-b015e5485705


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# Assessment Requirements for HLTAID003 Provide first aid

## Modification History

| Release | Comments |
|---|---|
| Release 6 | Updated:<br>• assessor requirements statement<br>• foundation skills lead in statement<br>• licensing statement<br>• modification history to reflect 2012 standards<br>Equivalent outcome. |
| Release 5 | Updated mapping information. Changes to assessment requirements. Equivalent outcome. |
| Release 4 | Updated mapping information. Equivalent outcome. |
| Release 3 | Updated mapping information. |
| Release 2 | Minor corrections to formatting to improve readability. Equivalent competency outcome. |
| Release 1 | This version was released in *HLT Health Training Package release 1.0* and meets the requirements of the 2012 Standards for Training Packages.<br>Significant changes to elements and performance criteria, changes to scope of unit. New evidence requirements for assessment.<br>Removal of prerequisite unit. |

## Performance Evidence

e candidate must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the job role.

There must be evidence that the candidate has completed the following tasks in line with state/territory regulations, first aid codes of practice, Australian Resuscitation Council (ARC) guidelines and workplace procedures:

- Followed DRSABCD in line with ARC guidelines, including:


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  - performed at least 2 minutes of uninterrupted single rescuer cardiopulmonary resuscitation (CPR) (5 cycles of both compressions and ventilations) on an adult resuscitation manikin placed on the floor
  - performed at least 2 minutes of uninterrupted single rescuer CPR (5 cycles both compressions and ventilations) on an infant resuscitation manikin placed on a firm surface
  - responded appropriately in the event of regurgitation or vomiting
  - managed the unconscious breathing casualty
  - followed single rescue procedure, including the demonstration of a rotation of operators with minimal interruptions to compressions
  - followed the prompts of an Automated External Defibrillator (AED)
- Responded to at least two simulated first aid scenarios contextualised to the candidate's workplace/community setting, including:
  - conducted a visual and verbal assessment of the casualty
  - demonstrated safe manual handling techniques
  - post-incident debrief and evaluation
  - provided an accurate verbal or written report of the incident
- Applied first aid procedures for the following:
  - allergic reaction
  - anaphylaxis
  - bleeding control
  - choking and airway obstruction
  - envenomation, using pressure immobilisation
  - fractures, sprains and strains, using arm slings, roller bandages or other appropriate immobilisation techniques
  - respiratory distress, including asthma
  - shock

# Knowledge Evidence

The candidate must be able to demonstrate essential knowledge required to effectively complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the work role. This includes knowledge of:

- State/Territory regulations, first aid codes of practice and workplace procedures including:
  - ARC Guidelines relevant to provision of CPR and first aid
  - safe work practices to minimise risks and potential hazards
  - infection control principles and procedures, including use of standard precautions
  - requirements for currency of skill and knowledge
- legal, workplace and community considerations including:
  - awareness of potential need for stress-management techniques and available support following an emergency situation
  - duty of care requirements


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  - respectful behaviour towards a casualty
  - own skills and limitations
  - consent
  - privacy and confidentiality requirements
  - importance of debriefing
- considerations when providing first aid including:
  - airway obstruction due to body position
  - appropriate duration and cessation of CPR
  - appropriate use of an AED
  - chain of survival
  - standard precautions
  - how to conduct a visual and verbal assessment of the casualty
- principles and procedures for first aid management of the following scenarios:
  - abdominal injuries
  - allergic reaction
  - anaphylaxis
  - basic care of a wound
  - bleeding control
  - burns
  - cardiac conditions, including chest pain
  - choking and airway obstruction
  - crush injuries
  - diabetes
  - dislocations
  - drowning
  - envenomation
  - environmental impact, including hypothermia, hyperthermia, dehydration and heat stroke
  - eye and ear injuries
  - fractures
  - febrile convulsions
  - head, neck and spinal injuries
  - minor skin injuries
  - needle stick injuries
  - poisoning and toxic substances
  - respiratory distress, including asthma
  - seizures, including epilepsy
  - shock
  - soft tissue injuries, including strains and, sprains
  - stroke


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  - unconsciousness
- basic anatomy and physiology relating to:
  - how to recognise a person is not breathing normally
  - chest
  - response/consciousness
  - upper airway and effect of positional change
  - considerations in provision of first aid for specified conditions

# Assessment Conditions

Skills must be demonstrated working individually in an environment that provides realistic in-depth, industry-validated scenarios and simulations to assess candidates' skills and knowledge.

Assessment resources must include:

- adult and infant resuscitation manikins in line with ARC Guidelines for the purpose of assessment of CPR procedures
- adrenaline auto-injector training device
- AED training device
- placebo bronchodilator and spacer device
- roller bandages
- triangular bandages
- workplace First Aid kit
- workplace injury, trauma and/or illness record, or other appropriate workplace incident report form for written reports
- wound dressings

Simulated assessment environments must simulate the real-life working environment where these skills and knowledge would be performed, with all the relevant equipment and resources of that working environment.

### Assessor requirements

Assessors must satisfy the Standards for Registered Training Organisations (RTOs) 2015/AQTF mandatory competency requirements for assessors.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ced1390f-48d9-4ab0-bd50-b015e5485705


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# ICPDMT321 Capture a digital image

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICP Printing and Graphic Arts Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to evaluate and use digital camera technology and alter and upload digital images.

It applies to individuals who may work in a team environment with some responsibility for producing quality outcomes based on requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Digital media technologies

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Assess digital camera qualities | 1.1 Camera software compatibility with hardware system is assessed and appropriate software is selected for job<br>1.2 Pixel resolution of camera is matched to required quality and resolution of outcome<br>1.3 RAM capacity of camera is checked to be sufficient for number of images required to be captured<br>1.4 Shutter speed, focal lengths and camera feature modes are assessed as suitable for quality and use of photographic images |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | required<br>1.5 Lithium batteries are handled and stored according to work health and safety (WHS) requirements |
| 2 Set up for image capture | 2.1 Camera is set up for image composition according to job specifications<br>2.2 Lighting is arranged according to job specifications<br>2.3 Light intensity is set for correct exposure |
| 3 Preview image | 3.1 Tone curves are adjusted according to job specifications<br>3.2 Neutral balance of image is arranged and adjusted<br>3.3 Adjustments to image composition and exposure are made |
| 4 Photograph and upload digital image | 4.1 Digital camera is loaded and operated according to manufacturer's and job specifications appropriate to quality of image to be photographed<br>4.2 File is uploaded on to relevant computer and image saved on hard disk<br>4.3 Photographic image files are created and stored on computer<br>4.4 Photographic images are enhanced, cropped and altered electronically to deliver required image<br>4.5 Photographic images are checked to ensure they meet job brief<br>4.6 Photographic images are delivered using required delivery mode |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 1.5, 2.1, 2.2, 3.1, 4.1, 4.5 | • Interprets textual information to determine and confirm job requirements |
| Writing | 4.3 | • Uses required conventions to name electronic files |
| Numeracy | 1.2-1.4, 2.3 | • Recognises mathematical data related to memory capacity<br>• Uses basic mathematical calculations to select |


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| | | |
|---|---|---|
| | | appropriate camera features related to shutter speed, focal length or pixel resolutions |
| Navigate the world of work | 1.5 | • Adheres to legislative requirements related to own role with specific reference to safety |
| Get the work done | 1.1-1.4, 2.1-2.3, 3.1-3.3, 4.1-4.6 | • Plans and implements tasks required to complete jobs according to specifications<br>• Assesses job requirements to make decisions related to camera settings and image outputs<br>• Analyses image quality problems and identifies and implements appropriate correction methods<br>• Understands the purposes, specific functions and key features of common digital systems and tools and operates them effectively to produce digital images |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICPDMT321 Capture a digital image | ICPMM321C Capture a digital image | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a74b7a0f-a253-47e3-8be0-5d426e24131d


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# Assessment Requirements for ICPDMT321 Capture a digital image

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICP Printing and Graphic Arts Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- find and use information relevant to the task from various sources
- set up a digital camera correctly and safely
- use a digital camera to:
  - preview and capture THREE digital images
  - transfer images to a computer
  - use relevant software to produce final images that meet job requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify and explain the key features of the digital camera that impact on the quality of the photographic image
- determine the safety requirements for handling and storing lithium batteries
- explain how to transfer and store images from a camera to a computer list and describe ways that photographic images can be altered or enhanced electronically
- explain why the required delivery mode is important when preparing a photographic image.

## Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the digital media technologies field of work and include access to:


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- a digital camera
- computer hardware and software
- photographic equipment and materials.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a74b7a0f-a253-47e3-8be0-5d426e24131d


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# ICPDMT346 Incorporate video into multimedia presentations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICP Printing and Graphic Arts Training Package Version 1.0. |

## Application

This unit describes the skills and knowledge required to edit and add video to multimedia presentations.

It applies to individuals who select and use appropriate software and hardware to produce digital video sequences to meet required outcomes.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## Unit Sector

Digital media technologies

## Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| *Elements describe the essential outcomes.* | *Performance criteria describe the performance needed to demonstrate achievement of the element.* |
| 1 Identify and describe formats of digital video | 1.1 Distinguishing features and uses of range of digital video software are determined<br>1.2 Current video software appropriate to range of given outcomes is selected<br>1.3 Limiting factors of computer hardware on video production for specified job are determined<br>1.4 Differences of image quality and image size required to deliver desired outcome are determined |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | 1.5 Data input, processing and output relevant to video are explained<br>1.6 Formats employed to create given computer video sequence for specified outcome are analysed |
| 2 Design digital video | 2.1 Appropriate digital video software for job is assessed and selected<br>2.2 Digital video editing software is used to combine video assets<br>2.3 Variations in video frame rates are controlled as required for job to be undertaken<br>2.4 Time stamping techniques are applied to video frames as required<br>2.5 Digital video is saved using appropriate file techniques |
| 3 Edit digital video | 3.1 Single and multiple video tracks are edited to achieve defined outcome<br>3.2 Multiple tracks of digital video are joined according to job specifications<br>3.3 Digital effects are employed to modify and integrate digital video tracks according to job specifications<br>3.4 Time encoding is applied to single and multiple edited digital video tracks according to job specifications<br>3.5 Video track is inserted into multimedia production sequence according to job specifications |
| 4 Present digital video sequence | 4.1 Digital video is tested and combined with other digital imaging, sound and/or animation to create multimedia sequence<br>4.2 Multimedia sequence including video is saved and presented to client |

# Foundation Skills

*This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.*

| Skill | Performance Criteria | Description |
|---|---|---|
| Reading | 2.1, 2.3, 2.4, 3.3-3.5 | • Interprets textual information to establish or confirm job requirements |


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| | | |
|---|---|---|
| Oral Communication | 1.5 | • Uses clear technical terminology to provide information about video to others |
| Numeracy | 1.4, 2.3, 2.4, 3.4 | • Uses simple mathematical calculations to verify image quality and image size and to measure frame frequencies and track lengths |
| Interact with others | 4.2 | • Selects and uses appropriate communication methods and protocols when presenting information to clients |
| Get the work done | 1.1-1.4, 1.6, 2.1-2.5, 3.1-3.5, 4.1, 4.2 | • Plans and implements tasks required to complete jobs according to specifications<br>• Determines requirements and makes routine decisions directly related to completion of tasks<br>• Understands the purposes, functions and features of digital systems and tools used for video recording and editing, and uses them effectively to complete tasks |

# Unit Mapping Information

| **Code and title current version** | **Code and title previous version** | **Comments** | **Equivalence status** |
|---|---|---|---|
| ICPDMT346 Incorporate video into multimedia presentations | ICPMM346C Incorporate video into multimedia presentations | Updated to meet Standards for Training Packages | Equivalent unit |

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a74b7a0f-a253-47e3-8be0-5d426e24131d


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# Assessment Requirements for ICPDMT346 Incorporate video into multimedia presentations

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICP Printing and Graphic Arts Training Package Version 1.0. |

## Performance Evidence

Evidence of the ability to:

- design, compile, edit and present at least TWO multimedia sequences incorporating video including:
  - interpreting requirements from job specifications
  - selecting and using suitable software and hardware.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

## Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline important considerations when combining digital video with other digital imaging, sound and/or animation to create a multimedia sequence
- summarise the features of current video software programs, including the differences between the programs
- explain the limiting factors of video production on computers
- determine how the differences of image quality and image size are obtained
- describe the process used to combine video assets
- explain how variations in video frame rates are controlled
- explain why time stamping techniques are applied to video frames.


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# Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the digital media technologies field of work and include access to software, hardware and equipment and materials required for construction and editing of video files.

Assessors must satisfy NVR/AQTF assessor requirements.

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a74b7a0f-a253-47e3-8be0-5d426e24131d


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# RIIHAN301D Operate elevating work platform

## Modification History

| Release | Comment |
|---|---|
| 1 | This unit replaces RIIHAN301B Operate elevating work platform |
| 2 | Editorial corrections; Amend reference to Licensing requirements in Unit Application |
| 3 | Required frequency and volume of evidence amended in Performance evidence.<br>Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm. |

## Application

This unit describes a participant's skills and knowledge required to operate an elevating work platform in the Resources and Infrastructure Industries.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories and Industry sectors. Relevant information must be sourced prior to application of the unit.

## Elements and Performance Criteria

| | |
|---|---|
| 1. Plan and prepare for operating an elevating work platform | 1.1 Access, interpret and apply elevating work platforms documentation and ensure the work activity is compliant<br>1.2 Obtain, read, interpret, clarify and confirm work requirements<br>1.3 Select and wear personal protective equipment appropriate for work activities<br>1.4 Identify and select any required tools and equipment, check for serviceability and rectify or report, verbally or in writing, any faults prior to commencement<br>1.5 Perform pre-start and post-start inspections/checks<br>1.6 Coordinate activities with others prior to commencement of, and during, the work activity |


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| | |
|---|---|
| | 1.7 Identify and address potential risks, hazards and environmental issues, and implement control measures<br>1.8 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency |
| 2. Conduct work activities from elevating work platform | 2.1 Stabilise elevating work platform<br>2.2 Place tools and equipment into bucket/platform<br>2.3 Use approved safety devices, ensure safety of personnel and surrounding site<br>2.4 Act on or report, verbally or in writing, monitoring systems and alarms<br>2.5 Recognise and respond to hazardous and emergency situations<br>2.6 Complete work and shut-down in accordance with agreed work plan |
| 3. Carry out operator maintenance | 3.1 Carry out work platform inspections and fault finding<br>3.2 Carry out routine operational servicing, lubrication and housekeeping tasks in accordance with manufacturer's instructions and site authorised procedures and practices<br>3.3 Carry out minor operator maintenance to manufacturer's instructions and site requirements<br>3.4 Process written records |
| 4. Clean up | 4.1 Clear work area and reuse, recycle or dispose of materials<br>4.2 Check, clean, maintain and store plant, tools and equipment |

# Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

# Unit Mapping Information

RIIHAN301B Operate elevating work platform

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272


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# Assessment Requirements for RIIHAN301D Operate elevating work platform

## Modification History

| Release | Comment |
|---|---|
| 1 | This unit replaces RIIHAN301B Operate elevating work platform |
| 2 | Editorial corrections; Amend reference to Licensing requirements in Unit Application |
| 3 | Required frequency and volume of evidence amended in Performance evidence.<br>Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm. |

## Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of operating elevating work platforms including:
  - selecting and using the required plant, tools and equipment
  - planning and preparing for operating elevating work platforms
  - identifying, addressing and/or reporting, verbally or in writing monitoring systems and alarms
  - identifying and following procedures in emergency or hazardous situations
  - applying hand-eye coordination
- works effectively with others to undertake and complete the operation of elevating work platforms that meet all of the required outcomes including:
  - using a range of communication techniques and equipment to coordinate activities with others
  - maintaining written and verbal reporting requirements and procedures
- demonstrates completion of operating elevating work platforms that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:


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- stabilising elevating work platform
- selecting safety devices and correctly ensuring safety of personnel and surrounding site
- completing work platform inspections and fault finding
- completing operational servicing, lubrication and housekeeping tasks
- disposing of environmentally sensitive oils, fluids and materials

# Knowledge Evidence

The candidate must demonstrate knowledge of the following when operating an elevating work platform:

- the appropriate National Certification Standards
- site and equipment safety requirements
- equipment characteristics, technical capabilities and limitations
- elevating work platform operational procedures
- basic geological and survey data related to elevating work platforms
- site environmental requirements and constraints related to elevating work platforms

# Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,


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- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

| Industry sector | AQF** Level | Required assessor or Industry subject matter expert experience |
|---|---|---|
| Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction | 1 | 1 Year |
| | 2 | 2 Years |
| Drilling, Coal Mining and Extractive (Quarrying) | 3-6 | 3 Years |
| Metalliferous Mining and Civil Construction | 3-6 | 5 Years |
| Other sectors | Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation. | |

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272


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# RIIWHS204D Work safely at heights

## Modification History

| Release | Comments |
|---|---|
| 1 | This unit replaces RIIOHS204A Work safely at heights. |
| 2 | Formatting corrections. |
| 3 | Inserted Application information. |
| 4 | Required frequency and volume of evidence amended in Performance evidence.<br>Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm. |

## Application

This unit describes a participant's skills and knowledge required to work safety at heights in the Resources and Infrastructure Industries.

This unit it appropriate for those working in operational roles where they are required to perform work at heights.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

*Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.*

## Elements and Performance Criteria

| | |
|---|---|
| 1. Identify work requirements | 1.1 Access, interpret and apply height safety procedures and ensure the work activity is compliant<br>1.2 Inspect site to determine layout and physical condition, condition of structures, prevailing weather conditions, equipment requirements and potential hazards |


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| | |
|---|---|
| | 1.3 Adhere to WHS requirements<br>1.4 Identify, select and check safety equipment for serviceability<br>1.5 Identify, manage and report potential risks and hazards |
| 2. Identify work procedures and instructions | 2.1 Consult with authorised personnel to select materials, tools and equipment and check for serviceability<br>2.2 Select, wear and care for personal protective equipment<br>2.3 Inspect/install fall protection and perimeter protection equipment<br>2.4 Identify approved methods of moving tools and equipment to work area and minimise potential hazards associated with tools at heights<br>2.5 Ensure safety system has been installed correctly<br>2.6 Select and install appropriate signs and barricades |
| 3. Access and install equipment | 3.1 Consult with authorised personnel to ensure anchor fall protection and associated equipment is correctly fitted and adjusted<br>3.2 Ensure all required equipment is installed<br>3.3 Use recommended methods to access work area for people, tools and equipment<br>3.4 Locate tools and materials to eliminate or minimise the risk of items being knocked down |
| 4. Perform work at heights | 4.1 Check access from ground to work area and ensure it is safe<br>4.2 Keep fall equipment in place and adjusted appropriately for movement during work<br>4.3 Undertake manual handling of materials and equipment<br>4.4 Locate materials and equipment ensuring that they are safely secured and distributed<br>4.5 Check safety system periodically for compliance<br>4.6 Monitor risk control measures to ensure that they are effective and appropriate<br>4.7 Reassess risk control measures, as required, in accordance with changed work practices and/or site conditions and undertake alterations |
| 5. Clean up work area | 5.1 Consult with authorised personnel to ensure safety system is dismantled and removed<br>5.2 Clear work area and dispose of or recycle materials<br>5.3 Clean, check, maintain and store tools and equipment |


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# Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

# Unit Mapping Information

RIIOHS204A Working safely at heights

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272


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# Assessment Requirements for RIIWHS204D Work safely at heights

## Modification History

| Release | Comments |
|---|---|
| 1 | This unit replaces RIIOHS204A Work safely at heights. |
| 2 | Formatting corrections. |
| 3 | Inserted Application information. |
| 4 | Required frequency and volume of evidence amended in Performance evidence.<br>Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm. |

## Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- demonstrates completion of working safely at heights that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
  - accessing, interpreting and applying technical and safety information for working at heights
  - assessing hazards and risk associated with working at heights and implement control methods
  - selecting wearing and caring for personal protective equipment
  - identifying required safety systems including fall protection and associated equipment
  - checking that fitting, adjusting and anchoring of fall protection and associated equipment is correct
  - performing work safely at heights

## Knowledge Evidence

The candidate must demonstrate knowledge of the following when working safely at heights:

- names and functions of equipment, components and materials


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- complying with equipment manufacturer's instructions and specifications
- safe shifting and handling of tools and materials
- adhering to statutory and regulatory authority requirements
- the nature of work undertaken at heights
- complying with heights safety systems
- the processes of providing for safe working practices
- using safety equipment/systems and considerations to facilitate working safely at heights
- complying with safe work methods

# Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

| Industry sector | AQF** Level | Required assessor or Industry subject matter expert experience |
|---|---|---|
| Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction | 1 | 1 Year |
| | 2 | 2 Years |


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| | | |
|---|---|---|
| Drilling, Coal Mining and Extractive (Quarrying) | 3-6 | 3 Years |
| Metalliferous Mining and Civil Construction | 3-6 | 5 Years |
| Other sectors | Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation. | |

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

# Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272


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# TLID2010A Operate a forklift

## Modification History

Not Applicable

## Unit Descriptor

**Unit Descriptor**

This unit involves the skills and knowledge required to operate a forklift, including checking forklift condition, driving the forklift to fulfil operational requirements, monitoring site conditions, and monitoring and maintaining forklift performance. Assessment of this unit will usually be undertaken within a licensing examination conducted by, or under the authority of, the relevant state/territory OH&S authority. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

## Application of the Unit

**Application of the Unit**

Operation of a forklift must be carried out in compliance with the licence requirements and regulations of the relevant state/territory authority.

Operation of a forklift is performed under some supervision, generally within a team environment. It involves the application of routine equipment operation principles and procedures to maintain the safety and operation of a forklift in a variety of operational contexts.

## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

Not Applicable



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# Employability Skills Information

**Employability Skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **1 Check forklift condition** | 1.1 Condition of forklift is checked for compliance with OH&S and workplace requirements for warning devices, manufacturers specifications and the nature of the load shifting task |
| | 1.2 Attachments are checked to ensure appropriate adjustment and operation |
| | 1.3 Mirrors and seats are adjusted for safe operation by the driver |
| | 1.4 Log books are checked and appropriate workplace documentation is completed in accordance with workplace requirements |
| **2 Drive the forklift** | 2.1 Forklift is started, steered, manoeuvred, positioned and stopped in accordance with regulations and manufacturers instructions |
| | 2.2 Engine power is managed to ensure efficiency and performance and to minimise engine and gear damage |
| | 2.3 Operational hazards are identified and/or anticipated and avoided or controlled through defensive driving and appropriate hazard control techniques |
| | 2.4 Forklift is driven in reverse, maintaining visibility and achieving accurate positioning |
| | 2.5 The forklift is parked, shut down and secured in accordance with manufacturers specifications, regulations and workplace procedures |
| **3 Operate a forklift to handle loads** | 3.1 The lifting task to be undertaken is appropriately planned and the correct lifting truck and attachments are selected |
| | 3.2 The load is lifted, carried, lowered and set down in accordance with OH&S legislation, manufacturers specifications and company procedures |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **4 Monitor site conditions** | 4.1 When selecting the most efficient route, hazards and traffic flow are identified and appropriate adjustments are made |
| | 4.2 Site conditions are assessed to enable safe operations and to ensure no injury to people or damage to property, equipment, loads or facilities occurs |
| **5 Monitor and maintain forklift performance** | 5.1 Performance and efficiency of vehicle operation is monitored during use |
| | 5.2 Defective/irregular performance and malfunctions reported to relevant personnel |
| | 5.3 Forklift records are maintained/updated in accordance with workplace procedures and legislative requirements |

# Required Skills and Knowledge

## REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

**Required knowledge**:

- Relevant duty of care requirements pertaining to the operation of a forklift
- Relevant OH&S and environmental procedures and regulations
- Workplace operating procedures
- Forklift controls, instruments and indicators and their use
- Forklift handling procedures
- Procedures to be followed in the event of an operational emergency
- Engine power management and safe operating strategies
- Efficient driving techniques
- Operating hazards and related defensive driving and hazard control techniques
- Pre-operational checks carried out on forklift and related action
- Principles of stress management when driving a forklift
- Site layout and obstacles

**Required skills**:

- Communicate effectively with others when operating a forklift
- Read and interpret instructions, procedures, information and signs relevant to the operation of a forklift


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**Required skills**:

- Interpret and follow operational instructions and prioritise work
- Complete documentation related to the operation of a forklift
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when operating a forklift
- Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others
- Promptly report and/or rectify any identified problems, faults or malfunctions in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events when operating a forklift
- Apply precautions and required action to minimise, control or eliminate hazards that may exist during the operation of a forklift
- Monitor work activities in terms of planned schedule
- Modify activities depending on differing operational contingencies, risk situations and environments
- Apply fatigue management knowledge and techniques
- Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- Operate and adapt to differences in equipment in accordance with standard operating procedures
- Select and use required personal protective equipment conforming to industry and OH&S standards
- Identify points of balance and safe lifting positions on a range of loads when operating a forklift (including accessories)
- Monitor performance of forklift and its equipment and take appropriate action where required
- Ensure that a forklift and its equipment are maintained in terms of service schedule and standard operating procedures
- Check and replenish fluids and carry out lubrication processes in the course of work activities

# Evidence Guide

## EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

| | |
|---|---|
| **Critical aspects for assessment and evidence required to** | • The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the |


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### EVIDENCE GUIDE

| | |
|---|---|
| **demonstrate competency in this unit** | requirements of the elements and performance criteria of this unit and include demonstration of applying:<br>• the underpinning knowledge and skills<br>• relevant legislation and workplace procedures<br>• other relevant aspects of the range statement |
| **Context of and specific resources for assessment** | • Performance is demonstrated consistently over a period of time and in a suitable range of contexts<br>• Resources for assessment include:<br>  • a range of relevant exercises, case studies and/or other simulated practical and knowledge assessment, and/or<br>  • access to an appropriate range of relevant operational situations in the workplace<br>• In both real and simulated environments, access is required to:<br>  • relevant and appropriate materials and equipment, and<br>  • applicable documentation including workplace procedures, regulations, codes of practice and operation manuals |
| **Method of assessment** | • Assessment of this unit must be undertaken by a registered training organisation<br>• As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests<br>• Practical assessment must occur:<br>  • through activities in an appropriately simulated environment at the registered training organisation, and/or<br>  • in an appropriate range of situations in the workplace |

# Range Statement

### RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

| | |
|---|---|
| Types of forklift may include: | • counterbalance trucks<br>• reach trucks<br>• pallet trucks |


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## RANGE STATEMENT

| | |
|---|---|
| Operations may be carried out in typical forklift operational situations, including: | • operations conducted at day or night<br>• typical weather conditions<br>• on the open road<br>• on a private road or worksite<br>• while at a workplace |
| Customers may be: | • internal or external |
| Workplaces may comprise: | • large, medium or small worksites |
| Work may be conducted in: | • restricted spaces<br>• exposed conditions<br>• controlled or open environments |
| Loads to be shifted may require: | • special precautions |
| Loads to be shifted may be: | • irregularly shaped<br>• packaged or unpackaged<br>• labelled or unlabelled<br>• palleted or unpalleted |
| Hazards in the work area may include exposure to: | • chemicals<br>• dangerous or hazardous substances<br>• movements of equipment, goods and materials |
| Personnel in the work area may include: | • workplace personnel<br>• site visitors<br>• contractors<br>• official representatives |
| Forklift handling procedures may include: | • starting a forklift<br>• steering and manoeuvring a forklift<br>• accelerating and braking<br>• positioning and stopping a forklift<br>• reversing a forklift<br>• operating forklift controls, instruments and indicators<br>• using defensive driving techniques<br>• managing engine performance |
| Pre-operational checks may include: | • visual check of forklift<br>• checking and topping up of fluid levels<br>• checks of tyres<br>• checks of operation of forklift lights and indicators<br>• checks of brakes |
| Hazards may include (examples only): | • wet and iced operating surfaces<br>• oil on operating surface |


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## RANGE STATEMENT

| | |
|---|---|
| | • faulty brakes<br>• workplace obstacles and other operational equipment and vehicles<br>• damaged loads and pallets<br>• other personnel in work area |
| Depending on the type of organisation concerned and the local terminology used, workplace procedures may include: | • company procedures<br>• enterprise procedures<br>• organisational procedures<br>• established procedures |
| Personal protection equipment may include: | • gloves<br>• safety headwear and footwear<br>• safety glasses<br>• two-way radios<br>• high visibility clothing |
| Information/documents may include: | • goods identification numbers and codes, including IMDG markings and HAZCHEM signs<br>• manifests, bar codes, picking slips, merchandise transfers, stock requisitions, goods and container identification<br>• Australian Standard 2359 - Industrial Truck Code<br>• manufacturers specifications for forklift and associated equipment<br>• operations and service record book or log<br>• workplace procedures and policies for the operation of forklifts<br>• supplier and/or client instructions<br>• ADG Code and material safety data sheets<br>• regulatory requirements concerning the use of forklifts<br>• award, enterprise bargaining agreement, other industrial arrangements<br>• standards and certification requirements<br>• quality assurance procedures<br>• emergency procedures |
| Applicable procedures and codes may include: | • relevant state/territory regulations pertaining to the operation of forklifts<br>• relevant codes and standards, including Australian Standard 2359 - Industrial Truck Code<br>• relevant state/territory OH&S legislation<br>• relevant state/territory fatigue management regulations<br>• relevant state/territory environmental protection legislation |


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# Unit Sector(s)

Not Applicable

# Competency Field

**Competency Field** D - Load Handling


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# TLID3035A Operate a boom type elevating work platform

## Modification History

Not Applicable

## Unit Descriptor

**Unit Descriptor**

This unit involves the skills and knowledge required to operate a boom type elevating work platform, including inspecting and testing the elevating work platform, assessing job requirements and work, planning work and setting up for lift, carrying out the elevation, implementing planned hazard control and strategies, and packing up the work platform after operations. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

## Application of the Unit

**Application of the Unit**

Work must be carried out in compliance with the licence/permit requirements and regulations of the relevant state/territory authorities pertaining to boom type elevating work platform operations.

Work is performed with limited or minimum supervision, and with limited accountability and responsibility for self and others in achieving the prescribed outcomes. It involves the application of routine principles and procedures to the operation of a boom type elevating work platform in a variety of operational contexts.

## Licensing/Regulatory Information

Refer to Unit Descriptor

## Pre-Requisites

Not Applicable



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# Employability Skills Information

**Employability Skills** This unit contains employability skills.

# Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **1 Inspect and test elevating work platform** | 1.1 Work platform is visually inspected prior to operation for any evidence of damage, structural weakness or interference according to pre-operational safety check procedures |
| | 1.2 Routine pre-operational equipment checks are carried out in accordance with available checklists |
| | 1.3 Work platform log book is checked, service requirements are noted and maintenance personnel advised of any requirements |
| | 1.4 Elevating work platform is started in accordance with manufacturers guidelines and start-up procedures for operations and any abnormal noise or movement reported to an authorised person for corrective action |
| | 1.5 Start-up checks are conducted according to manufacturers specifications and company procedures to ensure work platform and equipment are operating correctly |
| | 1.6 Faults are corrected or are reported to an authorised person for corrective action according to company procedures |
| | 1.7 The operating and emergency controls are checked for correct operation in accordance with manufacturers specifications including use of the emergency decent device |
| | 1.8 Boom is lowered under simulated emergency conditions to check for operational effectiveness |
| | 1.9 Gear and accessories are checked and damaged or worn gear is segregated and reported to an authorised person for testing/repair/destruction |
| | 1.10 Results of inspections are recorded and reported according to company procedures |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| **2 Assess job requirements and work** | 2.1 Briefing, hand-over details, authorisations and clearances are received, interpreted and clarified in accordance with company and site procedures and legislative requirements |
| | 2.2 Work area is inspected and potential hazards are identified and appropriate elimination or control measures selected |
| | 2.3 Weight of load including personnel and equipment is correctly estimated to ensure job is within limits of work platform capacity |
| **3 Plan work and set up for lift** | 3.1 A work plan is developed and agreed with relevant workplace personnel to include hazard prevention/control measures and safety and emergency procedures in line with applicable Australian standards |
| | 3.2 A suitable firm and level standing is chosen and prepared for the location of the elevating work platform |
| | 3.3 Outriggers and stabilisers are correctly deployed and positioned in accordance with manufacturers instructions and appropriate Australian standards |
| | 3.4 Appropriate plates or packing are correctly used under the footplates as required to adequately distribute the loading |
| | 3.5 Ground is checked before and after packing is installed to ensure it is firm enough to bear the load |
| | 3.6 The job plan is developed to include hazard prevention/control measures and safety procedures in line with applicable Australian standards and to equipment manufacturers specifications |
| | 3.7 Work platform load chart is located and information on permissible loads, radii and heights taken into account in planning the job |
| | 3.8 The job plan takes into account job requirements and workplace rules and procedures |
| | 3.9 Job plan is discussed and confirmed with relevant personnel |
| | 3.10 Work gear and tools are properly stowed in the elevating work platform in accordance with Australian standards, company procedures and guides |
| **4 Carry out elevation** | 4.1 Configuration and operation of elevating work platform are checked as necessary to ensure safe lift |
| | 4.2 Operation of work platform is carried out in accordance with the job plan, the appropriate Australian standard and manufacturers specifications |
| **5 Planned hazard control and strategies are implemented** | 5.1 Load is constantly monitored to ensure safety of personnel, load and structural stability |
| | 5.2 Unplanned situations are responded to in line with company |


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| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | procedures in a manner that minimises risk to personnel and equipment |
| | 5.3 Required signals are correctly given, interpreted and followed in accordance with appropriate Australian standards |
| **6 Pack up work platform** | 6.1 The elevating work platform is shut down using the correct sequence of procedures in accordance with manufacturers instructions |
| | 6.2 Routine post-operational equipment checks are carried out in accordance with manufacturers instructions and available checklists and defects recorded and reported in line with company procedures |
| | 6.3 The elevating work platform is dismantled in accordance with the job plan, manufacturers instructions and relevant statutory regulations |
| | 6.4 The outriggers and stabilisers are secured and stowed in accordance with manufacturers instructions |
| | 6.5 The elevating work platform is correctly stowed and secured in accordance with manufacturers instructions and company procedures |

# Required Skills and Knowledge

## REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

**Required knowledge**:

- Relevant road rules, regulations, permit and licence requirements pertaining to boom type elevating work platform operation
- Relevant OH&S and environmental procedures and regulations
- Boom type elevating work platform applications, capacities, configurations, safety hazards and control mechanisms
- Workplace procedures concerning the operation of a boom type elevating work platform at a worksite
- Problems that may arise when operating a boom type elevating work platform and actions that should be taken to prevent or solve them
- Risks and hazards involved in the operation of a boom type elevating work platform and the associated action that can be taken to eliminate or minimise the risk/hazards concerned
- Focus of operation of work systems and equipment


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**Required skills**:

- Communicate effectively with others when operating a boom type elevating work platform
- Read and interpret instructions, procedures, regulations, codes of practice and manuals relevant to the operation of a boom type elevating work platform
- Interpret and follow operational instructions
- Complete documentation related to the operation of a boom type elevating work platform
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when operating a boom type elevating work platform
- Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others
- Promptly report and/or rectify any identified problems, faults or malfunctions that may occur when operating a boom type elevating work platform in accordance with regulatory requirements and workplace procedures
- Plan own work including predicting consequences and identifying improvements
- Prioritise and multi-task work
- Implement contingency plans for unanticipated situations that may arise when operating a boom type elevating work platform
- Apply precautions and required action to minimise, control or eliminate hazards that may exist during the operation of a boom type elevating work platform
- Monitor work activities in terms of planned schedule
- Modify activities depending on differing operational contingencies, risk situations and environments
- Apply fatigue management knowledge and techniques
- Identify and correctly use equipment, processes and procedures
- Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- Operate and adapt to differences in equipment in accordance with standard operating procedures
- Select and use required personal protective equipment conforming to industry and OH&S standards
- Monitor performance of equipment
- Service equipment in terms of maintenance schedule and standard operating procedures
- Check and replenish fluids and carry out lubrication processes in the course of work activities


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# Evidence Guide

## EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

**Critical aspects for assessment and evidence required to demonstrate competency in this unit**

- The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying:
  - the underpinning knowledge and skills
  - relevant legislation and workplace procedures
  - other relevant aspects of the range statement

**Context of and specific resources for assessment**

- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Resources for assessment include:
  - a range of relevant exercises, case studies and/or other simulated practical and knowledge assessment, and/or
  - access to an appropriate range of relevant operational situations in the workplace
- In both real and simulated environments, access is required to:
  - relevant and appropriate materials and equipment, and
  - applicable documentation including workplace procedures, regulations, codes of practice and operation manuals

**Method of assessment**

- Assessment of this unit must be undertaken by a registered training organisation
- As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests
- Practical assessment must occur:
  - through activities in an appropriately simulated environment at the registered training organisation, and/or
  - in an appropriate range of situations in the workplace


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# Range Statement

## RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

| | |
|---|---|
| Operations may be conducted: | • by day or night<br>• in a variety of weather conditions |
| Environment may include movement of: | • equipment<br>• goods<br>• materials<br>• vehicular traffic |
| Customers may be: | • internal or external |
| Boom type elevating work platform may be involved in work in a range of industry sectors including: | • construction and demolition<br>• manufacturing<br>• waterfront<br>• mining<br>• primary industry<br>• utilities (electricity, gas, water)<br>• arboricultural<br>• swimming pool<br>• quarrying |
| Hazards may include: | • power lines<br>• noise, light, energy sources<br>• overhead service lines<br>• surrounding buildings, structures, facilities<br>• underground services<br>• obstructions<br>• uneven or unstable ground and recently filled trenches<br>• stationary and moving machinery and equipment<br>• hazardous or dangerous materials<br>• traffic hazards and congestion |
| Hazard management is consistent with: | • the principle of hierarchy of control with elimination, substitution, isolation and engineering control measures being selected before safe working practices and personal protective equipment |
| Consultative processes may involve: | • other employees and supervisors<br>• management<br>• union representatives<br>• clients<br>• industrial relations and OH&S specialists |


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## RANGE STATEMENT

| | |
|---|---|
| | • other professional or technical staff |
| Requirements for access and/or lift may include: | • site restrictions and procedures<br>• authorities and permits<br>• hours of operation<br>• induction<br>• slings, chains, nets, brackets and other specialised lifting equipment<br>• noise restrictions<br>• personal protective equipment<br>• support trucks<br>• additional gear and equipment<br>• communications equipment |
| Personal protective equipment may include: | • gloves<br>• safety headwear and footwear<br>• sunscreen, sunglasses and safety glasses<br>• two-way radios<br>• high visibility clothing |
| Elevating platforms may include: | • mechanically operated equipment<br>• hydraulically operated equipment<br>• electrically operated equipment |
| Depending on the type of organisation concerned and the local terminology used, workplace procedures may include: | • company procedures<br>• enterprise procedures<br>• organisational procedures<br>• established procedures<br>• site procedures |
| Documentation/records may include: | • operations manuals<br>• Safe Working Load (SWL) and Working Load Limit (WLL)<br>• site plans<br>• induction documentation<br>• competency standards and training materials<br>• job specifications and procedures<br>• manufacturers specifications<br>• workplace operating procedures and policies<br>• supplier and/or client instructions<br>• communications technology equipment, oral, aural or signed communications<br>• personal and work area work procedures and practices<br>• conditions of service, legislation and industrial agreements including: |


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**RANGE STATEMENT**

| | |
|---|---|
| | • workplace agreements and awards<br>• occupational health and safety procedures<br>• standards and certification requirements<br>• quality assurance procedures<br>• emergency procedures |
| Applicable procedures and codes may include: | • relevant state/territory regulations and licence/permit requirements pertaining to the operation of boom type elevating work platforms<br>• relevant state/territory road rules<br>• relevant state/territory OH&S legislation<br>• relevant state/territory fatigue management regulations<br>• relevant state/territory environmental protection legislation |

# Unit Sector(s)

Not Applicable

# Competency Field

**Competency Field** D - Load Handling


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# ICT Information and Communications Technology

## Modification History

| Release Number | Release Date | Comments |
|---|---|---|
| Release 3.1 | June 2016 | Three skill sets removed and six skill sets added to assist rollout of National Broadband Network.<br>Minor amendments made to qualifications ICT20215 and ICT30415.<br>Minor amendments made to UoCs ICTNWK405, ICTCBL236 and ICTCBL237. |
| Release 1 | March 2015 | Primary release of restructured Training Package.<br>This release of ICT Information Communications Technology Training Package Version 1.0. contains; 30 qualifications, 27 skill sets and 397 native units of competency (comprising 397 units updated to meet Standards for Training Packages) and 106 imported units.<br>ICT80115 – Graduate Certificate in Information Technology and Strategic Management (updated to meet AQF Requirements)<br>ICT80215 – Graduate Certificate in Information Technology Sustainability (updated to meet AQF Requirements)<br>ICT80415 – Graduate Diploma in Telecommunications Network Engineering (updated to meet AQF Requirements)<br>ICT80315 – Graduate Certificate in Telecommunications - added<br>ICT80515 – Graduate Diploma of Telecommunications and Strategic Management - added |

## Credit Arrangements

## Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2


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# ICTSS00031 Application Development Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for working as applications programmers and software development specialists.

## Pathways Information

This skill set provides credit towards ICT50715 Diploma of Software Development.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTPRG501 Apply advanced object-oriented language skills

ICTPRG505 Build advanced user interface

ICTPRG506 Design application architecture

ICTPRG507 Implement security for applications

ICTPRG523 Apply advanced programming skills in another language

## Target Group

This skill set is for persons who are able to work as application programmers and software developers.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a software development specialist.


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# ICTSS00032 Basic Application Development Programmer Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for working as basic applications programmers using a range of programming languages

## Pathways Information

This skill set provides credit towards ICT40515 Certificate IV in Programming.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTPRG406 Apply introductory object-oriented language skills

ICTPRG413 Use a library or pre-existing components

ICTPRG414 Apply introductory programming skills in another language

ICTPRG418 Apply intermediate programming skill in another language

ICTPRG527 Apply intermediate object-oriented language skill

## Target Group

This skill set is for persons who are able to work as basic application programmers.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a basic application programmer.


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# ICTSS00033 Basic Computer Hardware and System Troubleshooting Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for troubleshooting basic computer hardware and system problems across a variety of industry sectors.

## Pathways Information

This skill set provides credit towards ICT20115 Certificate II in Information, Digital Media and Technology.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

BSBWHS201 Contribute to health and safety of self and others

ICTICT201 Use computer operating systems and hardware

ICTSAS201 Maintain inventories for equipment, software and documentation

ICTSAS205 Maintain ICT system integrity

ICTSAS206 Detect and protect from spam and destructive software

ICTSAS207 Protect and secure information assets



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ICTSAS208 Maintain ICT equipment and consumables

ICTSAS209 Connect and use a home based local wireless network

# Target Group

This skill set is for persons wanting to trouble shoot basic computer hardware and system problems, and work safely across a variety of industries.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology and BSB Business Services Training Packages meet competency requirements for basic computer hardware and system troubleshooting.



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# ICTSS00034 Basic Web Development Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set provides the requirements to meet competency requirements for skills in reviewing, developing and maintaining a simple websites.

## Pathways Information

This skill set provides credit towards ICT30115 Certificate III in Information, Digital Media and Technology.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

BSBEBU401 Review and maintain a website

ICTWEB302 Build simple websites using commercial programs

ICTWEB403 Transfer content to a website using commercial packages

## Target Group

This skill set is for persons wanting to develop and maintain a basic website.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology and BSB Business Services Training Packages meet competency requirements for skills in developing and maintaining a simple website.


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# ICTSS00035 Certified IT Network Enterprise, Security or Server Administrator Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for the installation, configuration and administration of enterprise security systems, servers and networks.

## Pathways Information

This skill set provides credit towards ICT40415 Certificate IV in Information Technology Networking.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK406 Install, configure and test network security

ICTNWK403 Manage network and data integrity

## Target Group

This skill set is for persons who are able to work as certified IT enterprise, security or server administrators.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in administering security, servers or enterprise networks.


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# ICTSS00036 Certified Network Associate Technology Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements at an associate level for managing, troubleshooting networks, routers and switches.

## Pathways Information

This skill set provides credit towards ICT50415 Diploma of Information Technology Networking.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK529 Install and manage complex ICT networks

ICTNWK506 Configure, verify and troubleshoot WAN links and IP services in a medium enterprise network

ICTNWK507 Install, operate and troubleshoot medium enterprise routers

ICTNWK508 Install, operate and troubleshoot medium enterprise switches



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# Target Group

This skill set is for persons who are able to work as certified network associate technology specialists.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for associate level skills in networking.


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# ICTSS00037 Certified Network Professional Specialist - Voice and Wireless Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills in working as a network professional specialising in wireless and voice networks.

## Pathways Information

This skill set provides credit towards ICT60215 Advanced Diploma of Network Security.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK605 Design and configure secure integrated wireless systems

ICTNWK606 Implement voice applications over secure wireless networks

ICTNWK607 Design and implement wireless network security

## Target Group

This skill set is for persons who are able to work as certified network professional specialists – voice and wireless.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional specialising in voice and wireless networks.


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# ICTSS00038 Certified Network Professional Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills in working as a network specialist planning, configuring and troubleshooting network and internetwork solutions.

## Pathways Information

This skill set provides credit towards ICT60215 Advanced Diploma of Network Security.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK603 Plan, configure and test advanced internetwork routing solutions

ICTNWK604 Plan and configure advanced internetwork switching solutions

ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks

## Target Group

This skill set is for persons who are able to work as certified network professional specialists.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional.


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# ICTSS00039 Certified Networking Technician Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error and update unit code |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills in working as a technician specialising in small enterprise networks, wireless and installation and configuration of networking solutions.

## Pathways Information

This skill set provides credit towards ICT40415 Certificate IV in Information Technology Networking.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK405 Build a small wireless local area network

ICTTEN417 Install, configure and test a router

## Target Group

This skill set is for persons who are able to work as certified network technicians.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for technical skills in networks.


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# ICTSS00040 Certified Security and Architect Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills in managing complex ICT security and network architecture solutions.

## Pathways Information

This skill set provides credit towards ICT50415 Diploma of Information Technology Networking.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK529 Install and manage complex ICT networks

ICTNWK503 Install and maintain valid authentication processes

ICTNWK511 Manage network security

## Target Group

This skill set is for persons who are able to work as certified security and architect technology specialists.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working with security and network architecture.


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# ICTSS00041 Certified Technician or Technology Specialist - Infrastructure Configuration Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills as a technician to design, build, test and maintain an ICT security and network architecture solution.

## Pathways Information

This skill set provides credit towards ICT50415 Diploma of Information Technology Networking.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK505 Design, build and test a network server

ICTNWK503 Install and maintain valid authentication processes

## Target Group

This skill set is for persons who are able to work as certified infrastructure configuration technicians or technology specialists.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in configuring infrastructure.


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# ICTSS00042 Certified Technology Specialist - Graphical User Interfaces Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills as a technician specialising in the configuration and management of graphics user interfaces.

## Pathways Information

This skill set provides credit towards ICT40415 Certificate IV in Information Technology Networking.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK403 Manage network and data integrity

ICTNWK408 Configure a desktop environment

## Target Group

This skill set is for persons who are able to work as graphical user interface (GUI) certified technology specialists.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in developing and maintaining GUIs.


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# ICTSS00043 Certified Web Design Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills as a technician in the design, construction, testing and maintenance of web sites.

## Pathways Information

This skill set provides credit towards ICT40315 Certificate IV in Web-Based Technologies.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTWEB409 Develop cascading style sheets

ICTWEB410 Apply web authoring tool to convert client data for websites

ICTWEB411 Produce basic client-side script for dynamic web pages

ICTWEB412 Produce interactive web animation

ICTWEB414 Design simple web page layouts

## Target Group

This skill set is for persons who are able to work as website designers.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a website designer.


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# ICTSS00044 Computing and Application Fundamentals Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills at a foundation level for the safe use of an operating system and basic applications software.

## Pathways Information

This skill set provides credit towards ICT20115 Certificate II in Information, Digital Media and Technology

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

BSBWHS201 Contribute to health and safety of self and others

ICTICT201 Use computer operating systems and hardware

ICTICT203 Operate application software packages

ICTICT210 Operate database applications



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# Target Group

This skill set is for persons wanting to use basic information and communications technology (ICT) and application software and work safely in any industry.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology and BSB Business Services Training Packages meet competency requirements for basic use of computers and applications.


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# ICTSS00045 Computing Fundamentals Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills as a technician to design, build, test and maintain an information and communications technology (ICT) security and network architecture solution.

## Pathways Information

This skill set provides credit towards ICT20115 Certificate II in Information, Digital Media and Technology

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

BSBWHS201 Contribute to health and safety of self and others

ICTICT201 Use computer operating systems and hardware

ICTICT203 Operate application software packages

ICTWEB201 Use social media tools for collaboration and engagement

## Target Group

This skill set is for persons wanting to use basic ICT skills and work safely in any industry.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology and BSB Business Services Training Packages meet basic competency requirements for basic ICT skills.


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# ICTSS00046 Digital Literacy - eCitizen Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for foundation skills in personal computing.

## Pathways Information

This skill set provides credit towards ICT10115 Certificate I in Information, Digital Media and Technology.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTICT101 Operate a personal computer

ICTICT102 Operate word-processing applications

ICTICT103 Use, communicate and search securely on the internet

## Target Group

This skill set is for persons wanting to gain basic digital literacy skills in using a personal computer.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for using a personal computer.


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# ICTSS00047 Digital Literacy Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for a broad range of digital literacy skills including the use of basic computing, web searching and basic applications software.

## Pathways Information

This skill set provides credit towards ICT10115 Certificate I in Information, Digital Media and Technology.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTICT101 Operate a personal computer

ICTICT102 Operate word-processing applications

ICTICT103 Use, communicate and search securely on the internet

ICTICT105 Operate spreadsheet applications

ICTICT106 Operate presentation packages



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# Target Group

This skill set is for persons wanting to gain digital literacy skills in the use of a personal computer, software applications and digital devices.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for digital literacy.


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# ICTSS00048 Hardware Technician Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements for skills as a basic technician for the installation and configuration of hardware for clients.

## Pathways Information

This skill set provides credit towards ICT30115 Certificate III in Information, Digital Media and Technology.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTICT302 Install and optimise operating system software

ICTICT303 Connect internal hardware components

ICTSAS307 Install, configure and secure a small office or home office network

ICTSAS301 Run standard diagnostic tests

ICTSAS305 Provide IT advice to clients

ICTSAS306 Maintain equipment and software



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# Target Group

This skill set is for persons who are able to work as hardware technicians, providing support in a range of ICT work areas and activities.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for support skills in hardware, software, operating systems and networks.


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# ICTSS00049 Internetworking Systems Coordinator - Administrator Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements as an internetworking systems coordinator or administrator.

## Pathways Information

This skill set provides credit towards ICT60515 Advanced Diploma of Computer Systems Technology.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK603 Plan, configure and test advanced internetwork routing solutions

ICTNWK605 Design and configure secure integrated wireless systems

ICTNWK610 Design and build integrated VoIP networks

ICTNWK611 Configure call processing network elements for secure VoIP networks

ICTNWK612 Plan and manage troubleshooting advanced integrated IP networks



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# Target Group

This skill set is for persons who are able to work as an internetworking systems administrator or coordinator.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as an internetworking coordinator or administrator.


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# ICTSS00050 Rich Interactive Content Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error and update unit codes |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements in interactive digital media.

## Pathways Information

This skill set provides credit towards ICT30115 Certificate III in Information, Digital Media and Technology.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

CUADIG304 Create visual design components

ICTGAM301 Apply simple modelling techniques

ICTGAM302 Design and apply simple textures to digital art

## Target Group

This skill set is for persons who are able to work with interactive digital media content.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology and CUA Creative Arts and Culture Training Packages meet competency requirements for skills in interactive digital media.


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# ICTSS00051 System and Hardware Plus Technician Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error and update unit code |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements as a support technician in computer systems hardware.

## Pathways Information

This skill set provides credit towards ICT40215 Certificate IV in Information Technology Support.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

BSBSUS401 Implement and monitor environmentally sustainable work practices

ICTSAS307 Install, configure and secure a small office or home office network

ICTICT421 Connect, maintain and configure hardware components

ICTSAS425 Configure and troubleshoot operating system software

ICTSAS426 Locate and troubleshoot ICT equipment, system and software faults

ICTICT401 Determine and confirm client business requirements



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# Target Group

This skill set is for persons who are able to work as a computer system and hardware technician.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology and BSB Business Services Training Packages meet competency requirements for support skills in working as a computer system and hardware technician.


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# ICTSS00052 System and Network Plus Technician Skill set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements as a technician to manage a computer system network.

## Pathways Information

This skill set provides credit towards ICT40215 Certificate IV in Information Technology Support.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTSAS307 Install, configure and secure a small office or home office network

ICTNWK401 Install and manage a server

ICTNWK404 Install, operate and troubleshoot a small enterprise branch network

ICTNWK406 Install, configure and test network security

## Target Group

This skill set is for persons who are able to work as a computer system and network support technician.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a network technician.


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# ICTSS00053 Virtualisation Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements as a specialist in virtualisation for computers, software and systems.

## Pathways Information

This skill set provides credit towards ICT50415 Diploma of Information Technology Networking

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK525 Configure an enterprise virtual computing environment

ICTNWK527 Manage an enterprise virtual computing environment

ICTNWK535 Install an enterprise virtual computing environment

## Target Group

This skill set is for persons who are able to work in the area of hardware, software and system virtualisation.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in in developing hardware, software and system virtual networks.


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# ICTSS00054 Visual Communications Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error and update unit codes |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements in visual communications specialist skills including video and digital images.

## Pathways Information

This skill set provides credit towards ICT30115 Certificate III in Information, Digital Media and Technology.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

CUADIG301 Prepare video assets

CUADIG304 Create visual design components

ICTWEB303 Produce digital images for the web

## Target Group

This skill set is for persons wanting to develop visual content for the web.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology and CUA Creative Arts and Culture Training Packages meet competency requirements for skills in developing visual components for websites.


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# ICTSS00055 Website Administration Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements as a website administrator.

## Pathways Information

This skill set provides credit towards ICT40315 Certificate IV in Web-Based Technologies.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK409 Create scripts for networking

ICTWEB404 Maintain website performance

ICTWEB405 Monitor traffic and compile website traffic reports

ICTWEB406 Create website testing procedures

ICTWEB407 Conduct operational acceptance tests of websites

ICTWEB408 Ensure basic website security



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# Target Group

This skill set is for persons who are able to work as website administrators.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a website administrator.


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# ICTSS00056 Enterprise Desktop Virtualisation Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements as a professional desktop virtualisation technology specialists for business and enterprises.

## Pathways Information

This skill set provides credit towards ICT60215 Advanced Diploma of Network Security.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTICT609 Lead the evaluation and implementation of current industry-specific technologies

ICTNWK615 Design and configure desktop virtualisation

ICTNWK616 Manage security, privacy and compliance of cloud service deployment

ICTPRG602 Manage the development of technical solutions from business specifications

## Target Group

This skill set is for persons wanting to work as certified professional desktop virtualisation technology specialists.



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# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional specialising in desktop virtualisation technology.


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# ICTSS00057 Enterprise Server Virtualisation Specialist Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 2 | This version released with ICT Information and Communications Technology Training Package version 2.0<br><br>Release 2 created to update typographical error |
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 1.0. |

## Description

This skill set has been designed for individuals who wish to meet competency requirements as a specialist professional in server and computer virtualisation technologies.

## Pathways Information

This skill set provides credit towards ICT50415 Diploma of Information Technology Networking.

## Licensing/Regulatory Information

Not applicable.

## Skill Set Requirements

ICTNWK524 Install and configure network access storage devices

ICTNWK525 Configure an enterprise virtual computing environment

ICTNWK527 Manage an enterprise virtual computing environment

ICTNWK533 Configure and manage advanced virtual computing environments

ICTNWK534 Monitor and troubleshoot virtual computing environments

ICTNWK535 Install an enterprise virtual computing environment



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# Target Group

This skill set is for persons wanting to work as certified professional server virtualisation technology specialists.

# Suggested words for Statement of Attainment

These units of competency from ICT Information and Communications Technology Training Package meet competency requirements for skills in working as a network professional specialising in virtualisation technology.


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# ICTSS00058 ACMA Advanced Cabler Registration Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set covers the additional training required for an open registered cabler to install, maintain, test and certify copper, fibre and coaxial installations in customer premises in accordance with Australian Communications and Media Authority (ACMA) requirements.

## Pathways Information

This skill set provides credit towards ICT30515 Certificate III in Telecommunications Technology.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL301 Install, terminate and certify structured cabling installation

ICTCBL302 Install and terminate optical fibre cable on customer premises

ICTCBL303 Install and terminate coaxial cable

ICTCBL304 Perform cable and system test on customer premises

## Target Group

This skill set is for ACMA open registered cablers who need additional training to carry out specialist work.



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# Suggested words for Statement of Attainment

These units of competency contribute to the Australian Communications and Media Authority requirements for mandatory specialist cabling endorsement of an existing open registered cabler.

# Custom Content Section

Not applicable.


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# ICTSS00059 Advanced ICT Sustainability Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required in the installation of sustainable information and communications technology (ICT) networks using internet protocol convergence and virtualisation technologies.

## Pathways Information

This skill set provides credit towards ICT51015 Diploma of Telecommunications Engineering.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTSUS404 Install thin client applications for power over ethernet

ICTSUS501 Implement server virtualisation for a sustainable ICT system

BSBSUS501 Develop workplace policy and procedures for sustainability

## Target Group

This skill set is targeted at existing workers in the telecommunications industry.

## Suggested words for Statement of Attainment

These units of competency meet industry requirements for installing sustainable information and communications technology (ICT) network equipment.



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# Custom Content Section

Not applicable.


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# ICTSS00060 Advanced Telecommunications Rigging Installation Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the advanced level skills and knowledge required to install telecommunications network infrastructure on structures. It prepares individuals to work for carriers in the practical application of network equipment on structures.

## Pathways Information

This skill set provides credit towards ICT30315 Certificate III in Telecommunications Rigging Installation.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTTCR201 Use rigging practices and systems on telecommunications network structures

ICTTCR202 Use operational safety in a telecommunications rigging environment

ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures

ICTTCR301 Build a telecommunications radio structure

ICTTCR302 Install radio plant and equipment on telecommunications structures

ICTTCR303 Protect against electromagnetic radiation and systems hazards when working on telecomms radio sites

ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers



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# Target Group

This skill set is designed for individuals who are experienced in basic rigging practices and the installation of telecommunications network infrastructure on structures.

# Suggested words for Statement of Attainment

These units of competency meet the industry requirements for advanced level skills in installing telecommunications network infrastructure on structures.

# Custom Content Section

Not applicable.


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# ICTSS00061 Basic ICT Sustainability Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required for the installation of information and communication technology (ICT) networks using technologies to reduce energy consumption.

## Pathways Information

This skill set provides credit towards ICT41215 Certificate IV in Telecommunications Engineering Technology.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTSUS401 Install and test renewable energy system for ICT networks

ICTSUS402 Install and test power saving hardware

ICTSUS403 Install and test power management software

## Target Group

This skill set is targeted at existing workers in the telecommunications industry.

## Suggested words for Statement of Attainment

These units of competency meet industry requirements for work in the installation of ICT network equipment using technologies to reduce energy consumption.



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# Custom Content Section

Not applicable.


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# ICTSS00062 ACMA Open Cabler Registration Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to install, maintain and modify telecommunications customer cabling in domestic and commercial premises in accordance with Australian Communications and Media Authority (ACMA) requirements.

## Pathways Information

This skill set provides credit towards ICT30515 Certificate III in Telecommunications Technology.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCBL237 Install, maintain and modify customer premises communications cabling: ACMA Open Rule

ICTTEN201 Use electrical skills in telecommunications work

ICTTEN202 Use hand and power tools

ICTWHS204 Follow work health and safety and environmental policy and procedures

ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule



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# Target Group

This skill set is for new or existing workers in the telecommunications industry who wish to be employed as open registered cablers in accordance with ACMA requirements.

# Suggested words for Statement of Attainment

These units of competency contribute to the Australian Communications and Media Authority training requirements for open cabling registration.

# Custom Content Section

Not applicable.


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# ICTSS00063 ACMA Restricted Cabler Registration Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to perform a restricted range of residential and small business cabling work in accordance with Australian Communications and Media Authority (ACMA) requirements.

## Pathways Information

This skill set provides credit towards ICT20315 Certificate III in Telecommunications Technology.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL236 Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCMP202 Perform restricted customer premises broadband cabling work: ACMA Restricted Rule

ICTTEN202 Use hand and power tools

ICTTEN201 Use electrical skills in telecommunications work

ICTWHS204 Follow work health and safety and environmental policy and procedures

## Target Group

This skill set is for new or existing workers in the telecommunications industry who wish to be employed as restricted registered cablers in accordance with ACMA requirements.



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# Suggested words for Statement of Attainment

These units of competency contribute to the Australian Communications and Media Authority training requirements for restricted cabling registration.

# Custom Content Section

Not applicable.


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# ICTSS00064 Basic Telecommunications Rigging Installation Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to install telecommunications network infrastructure on structures.

## Pathways Information

This skill set provides credit towards ICT20315 Certificate II in Telecommunications Technology.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL208 Splice and terminate optical fibre cable for carriers and service providers

ICTRFN201 Install a satellite antenna

ICTTCR201 Use rigging practices and systems on telecommunications network structures

ICTTCR202 Use operational safety in a telecommunications rigging environment

ICTTCR203 Use safe rigging practices to climb and perform rescues on telecommunications network structures

ICTTEN207 Install and test internet protocol devices in convergence networks



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# Target Group

This skill set is targeted at new or existing workers in the telecommunications industry who wish to develop basic skills in rigging.

# Suggested words for Statement of Attainment

These units of competency meet the industry requirements for installation of a limited range of telecommunications network infrastructure on structures.

# Custom Content Section

Not applicable.


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# ICTSS00065 Civil Works – Installation of Pit and Pipe and FDH Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to work in National Broadband Network (NBN) construction roles.

## Pathways Information

This skill set provides credit towards the ICT20215 Certificate II in Telecommunications Network Build and Operate.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

CPCCOHS1001A Work safely in the construction industry

HLTAID001 Provide cardiopulmonary resuscitation

ICTCBL211 Install an above ground equipment enclosure

ICTCBL213 Construct underground telecommunications infrastructure

ICTPMG201 Prepare site for support installation

ICTTEN202 Use hand and power tools

ICTWHS204 Follow work health and safety and environmental policy and procedures



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# Target Group

This skill set is for new of existing workers in the telecommunications industry who wish to work in NBN construction.

# Suggested words for Statement of Attainment

These units of competency meet industry requirements for the installation of pit and pipe and fibre distribution hub (FDH) cabinets.

# Custom Content Section

Not applicable.


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# ICTSS00066 Commercial Digital Television Antenna Systems Installation Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to work within the digital reception sector of the telecommunication industry in commercial antenna installation. The more complex antenna installations include Master Antenna TV (MATV) and Communal Antenna TV (CATV) systems.

## Pathways Information

This skill set provides credit towards ICT30215 Certificate III in Telecommunications Digital Reception Technology.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTCBL206 Alter services to existing cable system

ICTCBL306 Locate and identify cable system faults

ICTDRE303 Install a complex digital reception system

ICTWHS204 Follow work health and safety and environmental policy and procedures

ICTRFN401 Conduct radio frequency measurements

## Target Group

This skill set is for experienced personnel who may have undertaken the domestic antenna installation program, or similar, and wish to work in commercial antenna installation.



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# Suggested words for Statement of Attainment

These units of competency meet industry requirements for working in commercial antenna installation.

# Custom Content Section

Not applicable.


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# ICTSS00067 Convergent Technology Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to use internet protocol (IP) technologies in the installation of information and communication technology (ICT) networks in homes and small to medium enterprises.

## Pathways Information

This skill set provides credit towards ICT41215 Certificate IV in Telecommunications Engineering Technology.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTTEN404 Install and configure a wireless mesh network

ICTTEN415 Install and configure internet protocol TV in a home network

ICTTEN416 Install, configure and test an internet protocol network

ICTTEN418 Install and test a radio frequency identification system

ICTTEN425 Design, install and configure a customer smart technology network

## Target Group

This skill set is for personnel who require training in the installation of ICT networks.



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# Suggested words for Statement of Attainment

These units of competency meet industry requirements related to the installation of information and communication technology networks in homes and small to medium enterprises.

# Custom Content Section

Not applicable.


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# ICTSS00068 Designer Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to design information and communications technology (ICT) access networks.

## Pathways Information

This skill set provides credit towards ICT41115 Certificate IV in Telecommunications Network Design.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTBWN303 Install lead-in module and cable for fibre to the premises

ICTCBL213 Construct underground telecommunications infrastructure

ICTCBL310 Install aerial cable

ICTNPL402 Plan the deployment of access network architectures

ICTPMG504 Prepare project specifications

## Target Group

This skill set is for individuals, with limited experience in the telecommunications industry, who require training in network design.

## Suggested words for Statement of Attainment

These units of competency meet industry requirements for designing access networks.



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# Custom Content Section

Not applicable.


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# ICTSS00069 Domestic Digital Television Antenna Installation Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to work in the digital reception sector of the telecommunication industry installing basic terrestrial antenna systems in single dwelling installations.

## Pathways Information

This skill set provides credit towards ICT20315 Certificate II in Telecommunications Technology and the ICT30215 Certificate III in Telecommunications Digital Reception Technology.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTCBL303 Install and terminate coaxial cable

ICTDRE301 Install digital reception equipment

ICTRFN202 Install a terrestrial antenna

ICTRFN401 Conduct radio frequency measurements

ICTTEN202 Use hand and power tools

ICTWHS204 Follow work health and safety and environmental policy and procedures



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# Target Group

This skill set is for new or existing workers who wish to gain the skills and knowledge required to install and maintain terrestrial antenna systems and associated digital reception equipment.

# Suggested words for Statement of Attainment

These units of competency meet industry requirements for the installation and maintenance of antenna systems and associated digital reception equipment.

# Custom Content Section

Not applicable.


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# ICTSS00071 IP Convergence Installations for Home and SME Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to use internet protocol (IP) technologies in the installation and maintenance of secure telecommunication networks in homes and small to medium enterprises.

## Pathways Information

This skill set provides credit towards ICT20315 Certificate II in Telecommunications Technology.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTTEN207 Install and test internet protocol devices in convergence networks

ICTTEN203 Install and configure a home or small office network

ICTTEN204 Install and configure a small to medium business network

ICTTEN205 Build and maintain a secure network

ICTTEN206 Operate new media software packages

## Target Group

This skill set is for individuals who wish to work in the installation of modern telecommunications networks.



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# Suggested words for Statement of Attainment

These units of competency meet industry requirements for work in the installation and maintenance of secure telecommunications networks in homes and small to medium enterprises.


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# ICTSS00074 Radio Technician Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to install, modify and maintain basic radio communications networks.

## Pathways Information

This skill set provides credits towards ICT41215 Certificate IV in Telecommunications Engineering Technology.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTRFN301 Install a radio communications antenna and feedline

ICTRFN304 Construct and test a radio communications device

ICTTEN201 Use electrical skills in telecommunications work

ICTTEN302 Install telecommunications network equipment

ICTTEN410 Locate, diagnose and rectify faults

ICTTEN414 Repair telecommunication system faults

ICTWHS204 Follow work health and safety and environmental policy and procedures

## Target Group

This skill set is suitable for individuals with limited experience in the telecommunications industry who wish to specialise in radio communications.



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## Suggested words for Statement of Attainment

These units of competency meet industry requirements for working in the installation, modification and maintenance of basic radio communications networks.

## Custom Content Section

Not applicable.


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# ICTSS00075 Technical Help Desk Support Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required to provide information and communication technology (ICT) advice to customers and to resolve technical enquiries.

## Pathways Information

This skill set provides credit towards ICT30515 Certificate III in Telecommunications Technology.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTSAS305 Provide ICT advice to clients

ICTWOR306 Resolve technical enquiries using multiple information systems

ICTWOR307 Collect and analyse technical information

## Target Group

This skill set is for individuals who wish to provide help desk support.

## Suggested words for Statement of Attainment

These units of competency meet industry requirements for help desk support roles.



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# Custom Content Section

Not applicable.


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# ICTSS00076 Wireless LAN and IP Network Installation Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 2.0. |

## Description

This skill set addresses the skills and knowledge required in the installation of a secure wireless local access network (LAN) and associated networking elements.

## Pathways Information

This skill set provides credit towards ICT41215 Certificate IV in Telecommunications Engineering Technology.

## Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

## Skill Set Requirements

ICTNWK406 Install, configure and test network security

ICTNWK417 Build an enterprise wireless network

ICTWHS202 Work safely in a radio frequency electromagnetic radiation environment

ICTTEN302 Install telecommunications network equipment

ICTTEN416 Install, configure and test an internet protocol network

ICTTEN417 Install, configure and test a router

## Target Group

This skill set is for those individuals who require further training in the installation of information and communication technology networks.



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# Suggested words for Statement of Attainment

These units of competency meet industry requirements for installing secure wireless local access networks.

# Custom Content Section

Not applicable.


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# ICTSS00077 Telecommunications Linesworker Copper Skill Set

## Modification History

**Modification History**

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.1. |

## Description

This skill set addresses the skills and knowledge required to install copper telecommunications cable. Each unit of competency includes relevant work, health and safety awareness training. Other health, safety and environment requirements, relevant to the role specified in this skill set, may be stipulated as part of workplace requirements.

## Pathways Information

This skill set provides credit towards the ICT20515 Certificate II in Telecommunications Network Build and Operate.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL211 Install an above ground equipment enclosure

ICTCBL213 Construct underground telecommunications infrastructure

ICTCBL214 Fix aerial cable

ICTCBL207 Haul underground cable

ICTCBL320 Jumper metallic conductor cable in the access network

ICTPMG201 Prepare site for support installation



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# Target Group

This skill set is for entry level telecommunications workers.

# Suggested words for Statement of Attainment

These units of competency meet industry requirements for the installation of copper telecommunications cable.

# Custom Content Section


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# ICTSS00078 Telecommunications Linesworker Fibre Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.1. |

## Description

This skill set addresses the skills and knowledge required to install telecommunications optical fibre cable. Each unit of competency includes relevant work, health and safety awareness training. Other health, safety and environment requirements, relevant to the role specified in this skill set, may be stipulated as part of workplace requirements.

## Pathways Information

This skill set provides credit towards the ICT20515 Certificate II in Telecommunications Network Build and Operate.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL207 Haul underground cable

ICTCBL211 Install an above ground equipment enclosure

ICTCBL213 Construct underground telecommunications infrastructure

ICTCBL214 Fix aerial cable

ICTPMG201 Prepare site for support installation

ICTTEN310 Remove and replace electronic circuit boards in carrier equipment

ICTTEN311 Inspect, clean and handle optical fibre cable and connectors



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# Target Group

This skill set is for entry level telecommunications workers.

# Suggested words for Statement of Attainment

These units of competency meet industry requirements for the installation of telecommunications optical fibre cable.

# Custom Content Section

Not applicable.


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# ICTSS00079 Telecommunications Linesworker HFC Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.1. |

## Description

This skill set addresses the skills and knowledge required for TAP down installation of hybrid fibrecoaxial (HFC) cable. Each unit of competency includes relevant work, health and safety awareness training. Other health, safety and environment requirements, relevant to the role specified in this skill set, may be stipulated as part of workplace requirements.

## Pathways Information

This skill set provides credit towards the ICT20215 Certificate II in Telecommunications Network Build and Operate.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL209 Joint and terminate coaxial cable

ICTCBL211 Install an above ground equipment enclosure

ICTCBL214 Fix aerial cable

ICTCBL220 Install a cable lead-in

ICTBWN305 Use optical and radio frequency measuring instruments

ICTPMG201 Prepare site for support installation



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# Target Group

This skill set is for entry level telecommunications workers.

# Suggested words for Statement of Attainment

These units of competency meet industry requirements for TAP down installation of HFC cable.

# Custom Content Section

Not applicable.


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# ICTSS00080 Copper Cable Jointer Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.1. |

## Description

This skill set addresses the skills and knowledge required to joint copper telecommunications cable. Each unit of competency includes relevant work, health and safety awareness training. Other health, safety and environment requirements, relevant to the role specified in this skill set, may be stipulated as part of workplace requirements.

## Pathways Information

This skill set provides credit towards the ICT30415 Certificate III in Telecommunications Network Build and Operate.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL215 Joint metallic conductor cable in access network

ICTCBL317 Cut over metallic conductor cable in the access network

ICTCBL318 Install and cut over metallic conductor cable to access network cabinet

ICTCBL319 Rearrange large size copper cable

ICTTEN302 Install telecommunications network equipment

ICTTEN303 Locate, identify and rectify recurrent network faults



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# Target Group

This skill set is for entry level telecommunications workers.

# Suggested words for Statement of Attainment

These units of competency meet industry requirements for the jointing of copper telecommunications cable.

# Custom Content Section

Not applicable.


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# ICTSS00081 Technician Fibre Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.1. |

## Description

This skill set addresses the skills and knowledge required to install, test and terminate telecommunications optical fibre cable. Each unit of competency includes relevant work, health and safety awareness training. Other health, safety and environment requirements, relevant to the role specified in this skill set, may be stipulated as part of workplace requirements.

## Pathways Information

This skill set provides credit towards the ICT30415 Certificate III in Telecommunications Network Build and Operate.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation

ICTCBL302 Install and terminate optical fibre cable on customer premises

ICTTEN310 Remove and replace electronic circuit boards in carrier equipment

ICTTEN311 Inspect, clean and handle optical fibre cable and connectors

ICTTEN409 Commission an electronic system

ICTTEN416 Install, configure and test an internet protocol network



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# Target Group

This skill set is for entry level telecommunications workers.

# Suggested words for Statement of Attainment

These units of competency meet industry requirements for working with telecommunications optical fibre cable.

# Custom Content Section

Not applicable.


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# ICTSS00082 Fibre Splicer Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.1. |

## Description

This skill set addresses the skills and knowledge required to splice telecommunications fibre. Each unit of competency includes relevant work, health and safety awareness training. Other health, safety and environment requirements, relevant to the role specified in this skill set, may be stipulated as part of workplace requirements.

## Pathways Information

This skill set provides credit towards the ICT30415 Certificate III in Telecommunications Network Build and Operate.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTBWN302 Install optical fibre splitters in fibre distribution hubs

ICTBWN304 Work safely with live fibre to test and commission a fibre to the x installation

ICTBWN305 Use optical and radio frequency measuring instruments

ICTCBL316 Install ribbon fibre cable in the FTTX distribution network

ICTTEN311 Inspect, clean and handle optical fibre cable and connectors.



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## Target Group

This skill set is for entry level telecommunications workers.

## Suggested words for Statement of Attainment

These units of competency meet industry requirements to splice telecommunications fibre.

## Custom Content Section

Not applicable.


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# ICTSS00083 Underground Installations Skill Set

## Modification History

| Release | Comments |
|---|---|
| Release 1 | This version first released with ICT Information and Communications Technology Training Package Version 3.1. |

## Description

This skill set addresses the skills and knowledge required to install underground telecommunications cable. Each unit of competency includes relevant work, health and safety awareness training. Other health, safety and environment requirements, relevant to the role specified in this skill set, may be stipulated as part of workplace requirements.

## Pathways Information

This skill set provides credit towards:

ICT20215 Certificate II in Telecommunications Network Build and Operate

ICT30415 Certificate III in Telecommunications Network Build and Operate

ICT30515 Certificate III in Telecommunications Technology.

## Licensing/Regulatory Information

Work functions in the occupational areas where this unit may be used are subject to regulatory requirements. Refer to the ICT Implementation Guide Companion Volume or the relevant regulator for details of licensing, legislative or certification requirements.

## Skill Set Requirements

ICTCBL307 Install underground enclosures and conduit

ICTCBL308 Install underground cable



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# Target Group

This skill set is for entry level telecommunications workers.

# Suggested words for Statement of Attainment

These units of competency meet industry requirements to install underground telecommunications cable.

# Custom Content Section

Not applicable.


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